Community-based Early Childhood Environmental Education: Narratives of Forest Explorations between Costa Rica and Canada

by

Helen Davidko

supervised by

Steve Alsop

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York University, Toronto, Ontario, Canada

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Abstract

This study shares a pedagogical inquiry into Early Childhood Environmental Education (ECEE). With praxis in mind, I connected the academic theory which I was learning with fieldwork practice, aiming to explore more critical understandings of ECEE and share them alongside the growing conversations and stories engaging seriously with young children and their environments. What resulted was an exploration, a 'first-step' for myself and participants, towards learning how to build an ECEE project based on participant and community interests. As such, processes and protocols were fluid, as participants and myself navigated and experimented with individual and group learning interests, capacity-building, and teaching/learning with young children *about/in/for* the 'natural world'. Exploring learning possibilities through facilitating an inquiry-based community action project focused on ECEE, I asked: (1) How might a group of Toronto daycare students, their families, teachers, interested members in the Las Nubes community, and myself (a FES researcher), collaboratively work together to engage with, learn about, and reflect on our local 'natural worlds' in dynamic, collaboratively-border crossing, ways? and (2) What co–constructed experiential narratives might be 'storied' as pedagogical lessons of engaging with ECEE? How might the outcomes from the project impact others? As the project emerged, participants engaged in exploring the pedagogical opportunities of group forest walks with children through collaboratively experiencing and sharing their different ways of understanding our local world(s) through observation, documentation, and arts-based methods. While finding shared migratory species was the initial interest, what developed was a collaborative project connecting and sharing the situated learning experiences and understandings of conducting group forest walks and related ECEE activities from each site, aiming to encourage further forest explorations with young children. The study does this by providing a narrative inquiry focused on sharing co-constructed

stories and knowledge which grew out of the project. Major narrative themes which emerged were: navigating systemic barriers of/through ECEE practice; ECEE collaboration with/between all ages and experience levels; navigating ethics in practice, safety/risk in ECEE, Stand-out ECEE activities, and children's expressed EE interests.

Foreword

The area of concentration within my Plan of Study (PoS) for this research explores Environmental Justice (EJ) for Early Childhood through two components, (1) Environmental/Sustainability Education and (2) Early Childhood Education (ECE) and Perspectives on Pedagogy. The learning objectives within these components have theoretically supported this research through a focus on transdisciplinary understandings and knowledge-sharing aimed at fostering more environmentally-engaged and interconnected communities—including connecting those in ECE and environmental education (EE) realms. Within component (1), I leaned that contemporary theories and practices in Environmental/Sustainability education can take many diverse and engaging forms *(about/in/for* the environment) drawing from a wealth of traditions. Learning about critical EE pedagogies and practices, including those informed by Popular Education, Ecohealth approaches to Systems Thinking, and Environmental Justice, offered me new perspectives and inquiries to explore. These critical ideas and questions shaped the study, as I wanted to engage in collaborative pedagogical exploration while recognizing the inherently political nature of working with children and/in the 'natural world'. Additionally, the institutionalization of EE in global and political narratives raises questions over the role of education in 'equipping' children to 'act for the future'. In component (2) I learned about the contested discourses around, influences on, and realities of 'professionalization' in early childhood education (ECE). Engaging in research in the child care Centre where I work, alongside my academic experiences in Costa Rica through the Las Nubes Semester Abroad, helped me to explore the different realities of ECE, EE, and EJ in both places—suggesting deeper and more pluralistic understandings of education in the Anthropocene. Inspired by the EE community work which I was introduced to in Costa Rica, I wanted to explore and facilitate a knowledge-building partnership which included early childhood educators,

environmental educators, young children, and their families. This process gave me experiences and insights into participatory action research, ECE, and ECEE which complemented and problematized the theoretical background which I had gained throughout the PoS. Engaging in this ECEE project, I encountered the barriers and opportunities faced by educators seeking to reduce the gaps in/between ECE and EE goals and realities. Through 'learning by doing', I was able to collaborate alongside this diverse group as we navigated ECEE in practice. 'Storying' our experiential learning, participants shared their diverse interests and understandings while collaboratively engaging in, and experimenting with, EE capacity-building activities and practices. Such pedagogical inquiry shares broader understandings of 'community' and 'agency' through a focus on early childhood environmental education. The stories shared in this study reflect individual and group identities formed through a focus on relationships. They invite others to reflect on their own experiences and perceptions of young children and environmental engagement. I hope this situated knowledge adds to the growing movement calling for community mobilization and institutional change to address systemic environmental justice problems.

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knowledgeable people who are actively working to make the world a better place. To Mariela Libedinsky, thank you for your Spanish lessons. To my parents, family, and friends, your love and care motivate me to keep learning and stay positive even when the world seems dark.

Figure 1: Site 2, close-up of collaborative map in-progress of local species—including glass frogs (Centrolenidae)—in the Las Nubes and Casita Azul areas

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Abbreviations

ASBC	Alexander Skutch Biological Corridor
CBPR	Community-Based Participatory Research
DAP	Developmentally-Appropriate Practice
ECE	Early Childhood Education
ECEC	Early Childhood Education and Care
ECEE	Early Childhood Environmental Education
ECEfS	Early Childhood Education for Sustainability
EE	Environmental Education
EJ	Environmental Justice
ELECT	Early Learning for Every Child Today
ESD	Education for Sustainable Development
FES	Faculty of Environmental Studies
HDLH?	How Does Learning Happen?
NAAEE	North American Association for Environmental Education
PAR	Participatory Action Research
UN	United Nations
YPAR	Youth Participatory Action Research

1 Introduction

In the wake of a shifting planet, early childhood educators are increasingly being called on to 'prepare' children to meet the challenges of the Anthropocene (Taylor, 2017). Early Childhood Environmental Education (ECEE) joins understandings from the broad fields of early childhood education (ECE)[1] and environmental education (EE). Contested fields with a diversity of approaches, collectively, the multitude of interdisciplinary methods possible within ECEE hold different strengths and weaknesses in equipping young children to face this period of amplified instability in the Earth's systems (Taylor, 2017, p. 1451). For example, ECEE which takes place in nature, like the forest school movement, is becoming more popular among increasingly urbanized communities, as educators fight to reintroduce people to nature amidst the global decrease in human-nature interactions (Harris, 2017). In this critical time, such 'informal' education tries to address the collective alienation from nature and resulting cycle of disaffection (which discourages positive emotions, attitudes, and behavior towards the environment) termed the "extinction of experience" (Soga & Gaston, 2016, p. 94). Haslip and Gullo point to the emerging field of human ecology, as "a good example of comprehensive systems thinking…with education seen as a bridge for both individual well-being and global human-ecological balance and prosperity" (2017, p. 250). Understandably, educators working inside the confines of institutions, existing policies, theories, and practices/experiences can struggle when incorporating such pedagogies into their teaching and/or even simply introducing learners to local environments with the hopes of fostering an affinity to the natural world through positive experiences.

[1] Also referred to as Early Childhood Education and Care (ECEC)

Understandings from transdisciplinary fields like ECEE show how broader collaborations between different groups (and ages) might create space(s) for experimentation, new potentials for more inclusive and critical pedagogical practices, and individual and group-led capacity-building. For example, experiences gained through connecting with different communities from one's own can support more pluralistic understandings of being in 'nature', informing future EE learning and teaching. As this study will explore, community members of the Alexander Skutch Biological Corridor (ASBC) in Costa Rica recognize the importance of their dynamic local environment, work to care for it, and promote environmental education (Cummins & Caravaggio, 2017a). Learning about environmental education in the area is pedagogically stimulating, as many community members are open to sharing their relationships with, and knowledge of, place. This contributes to more pluralistic understandings of contemporary environment(s) in a globalized world—especially as ecotourism to the area offers both benefits and disadvantages to locals. Community groups facilitating environmental stewardship work have collaborated more broadly, such as through community-university partnerships with York University in Canada, to share their knowledge and learn more from others (Cummins & Caravaggio, 2017b). As elsewhere, despite stakeholder's intent to 'do good' environmentally as a community, institutional complexity within the ASBC has been found to reduce coordination and polarize issues among community members engaged in environmental problem-solving projects (Jiménez, 2018). While pedagogues interested in facilitating community ECEE projects are likewise affected by this, Jiménez's work underscores the need to identify a shared community vision (encapsulating all of the main individual motivations) to reduce organizational barriers, allowing participants to work together on a shared objective to address systemic issues (ibid.). Considering ECEE work in the ASBC from a larger scale, institutionally, Costa Rica has integrated Education for Sustainable Development (ESD) in

policies, supporting all sectors in "capacity-building and public awareness, education and cultural change, with the aim of increasing environmental literacy" (UNESCO, 2017, p. 49). Likewise, they are increasingly recognizing the importance of, and working on improving, access and quality within ECEC (OECD, 2017; Villalobos, Moya, Castillo, & Rojas, 2018). This reflects a global shift, as governments identify and work to address critical sectors which have been underrepresented in the past. ECEE stakeholders around the world are in a unique position, as they can facilitate pedagogical work involving and reflecting on children's situated and diverse understandings of their dynamic environments. Listening to and incorporating these stories and understandings into a shared community vision may offer new understandings and possibilities in responding to the challenges which arise in an increasingly uncertain world—recognizing children as active co-learners already engaged in reflecting on and responding to their daily environmental realities.

As an ECEE practitioner, I recognized the importance of place in shaping learning experiences after working in both summer camp and early childcare environments in Ontario. The daily practice of being in the forest during the summers as a child and camp counselor (working mainly with 7-13 year olds) informed my interest in environmental education and my approach to pedagogy. Moving into working in early child care spaces, I learned more formal methods of observing, documenting, and facilitating educational activities for infants, toddlers, and preschoolers. I also witnessed the difficulties for educators, parents, and children made by fragmented systems related to early childhood education and care (ECEC) in Ontario (Ferns, 2017; Karia, 2014). Moreover, I sensed that ideas of 'professionalization' in ECEC restricted licensed educators wishing to explore more experimental pedagogies and learning, through strict criteria for 'quality' programs—shaped largely by intergovernmental relations despite, as some may argue,

uncoordinated policy-making (Karia, 2014; Prentice & White, 2019; Khattar & Callaghan, 2015). I wonder, at what age should we introduce children to environmental education? How should we introduce students to EE? Can existing programs/experiences be made more accessible to children and their families before the school-years? What changes in the ways that we educate and treat children if young children are already "competent, capable of complex thinking, curious, and rich in potential…a valuable contributor to [their] surroundings, and deserv[ing] the opportunity to succeed"? (Ontario Ministry of Education, 2014, p. 6). What might we learn from working with children, as local and global communities respond to an increasingly uncertain world? What stories should we share?

This study explores such issues while following participant experiences in an emerging ECEE project between 1. a child care Centre in Toronto and 2. interested participants in the Alexander Skutch Biological Corridor in Costa Rica. The study was largely inspired by Cummins & Caravaggio's EE work with the community in the ASBC (2017a; 2017b). Responding to Cummins & Caravaggio's work and wanting to involve children from the before-school-years in EE community work, I was intrigued by the pedagogical possibilities in pursuing a collaborative ECEE project asking '*how should we introduce children to EE?'*. This question created a space to explore and experiment with diverse pedagogies and share experiences and reflections alongside educators, children, and their families. Through this experience, a focus on learning from/with group forest walks emerged. This study follows my pedagogical narrative inquiry, as I share the experiences of planning, facilitating, and reflecting on various activities linked to this collaborative ECEE project (Riessman, 2008). I draw from Reissman, who refers to the broad tradition of "dialogic/performance analysis" (p. 19). This work frames narratives as multi-voiced and co-

constructed and is suitable for analyzing narratives which emerge through research in/with focus groups and classrooms (ibid.).

This paper is structured to provide (1) An outline of the case study project, including how the project emerged and the underlying theories which shaped it (section 1.1); (2) the literature which informed my research interest and contributed understandings to what data participants and I chose to collect and analyze (section 2); (3) the 3 phase process which the project followed (section 3); (4) my stories and the dialogic knowledge which emerged from the experience (section 4) (5) a conclusion summarizing what I've learned (5).

1.1 Theoretical Framework

This project grew out of my teaching and research interest to involve children from the before-school years, defined in ELECT (2007) as those under age 5, in a playful and engaging community environmental experiential learning project—aiming to incorporate the needs, ideas, and capabilities of a broader range of actors into positive local actions. Situating this study as a narrative pedagogical inquiry, I was interested in exploring how "[g]roups use stories to mobilize others, and to foster a sense of belonging" (Riessman, 2008, p. 8). The context around stories is made explicit within dialogic/performative analysis, an approach to narrative inquiry which focuses on the setting, the influence of the investigator, who produces and interprets the narrative (including the social circumstances and relationships involved)—exploring and analyzing narrative data through intersubjective and reflexive storytelling (Riessman, 2008). I see such a pedagogical inquiry as one aligned with Systems Thinking, as the two explicitly seek out, recognize, and reflect on interconnections and complexity through reflection, interpretation, and group value judgements (ibid.). Within Systems Thinking responses to complicated environmental problem-solving issues, pedagogical narratives from ECEE can address information flows as a

leverage point, contributing 'feedback' to inform decision-making at all related levels within the system (Meadows, 2008). As Meadows explains, "Missing information flows is one of the most common causes of system malfunction" (p. 157). Sharing information and building connections through storytelling can work as a "powerful intervention" addressing the fragmentation(s) which exist within and between ECE and EE realms (ibid.). Moreover, I saw co-constructed narrative inquiry as fitting, within a praxis-based ECEE project, as the framework required me to acknowledge my own, participant's individual and group subjectivity, and the related pluralistic understandings and beliefs which emerged as we experienced ECEE in practice—co-producing, co-gathering, co-reflecting on, and responding to the narrative data (Riessman, 2008).

I wanted to collaborate with and connect interested participants in environmental and early childhood education realms on an inclusive and action-centered inquiry-based environmental engagement project. Moreover, I was captivated by the idea of learning through research which defines itself as "a practice engaging in collective, intense and unpredictable experimentation together with pedagogical practices" (Olsson, 2009, p. 46). I wondered about the pedagogical possibilities within such a narrative framing. Working alongside other interested participants, I saw exploring and engaging with children's emerging expressed learning interests in local and shared migrating species as an accessible place to begin situating ourselves and exploring diverse stories of intergenerational interrelations with place and species. As the proposed data collection and analysis for the project involved a focus on children's EE understandings and educator's pedagogical experiences, I considered storytelling and narrative analysis as an accessible framework to explore with co-researchers of all ages. Visual arts-based methods were drawn from and incorporated within this storytelling framework, as a tool for expression and reflection which contributed to analysis. I believed that the output for the project should be accessible to participants

of all ages and this study provides my 'academic' story of the research created through participant collaboration.

1.1.1 Background: Analyzing ECEC Policies and Practices in Ontario

At the childcare Centre where I work, there are policies, documents, and requirements which inform and shape daily practice, and I wanted to examine our daily practices and collaboratively expand the pedagogical possibilities by experimenting with ECEE, drawing from interdisciplinary academic work problematizing 'taken for granted assumptions' in research and education as well as through participant engagement. An early challenge to my previously-held depoliticized understandings of ECE came from a book focusing on the potential contribution of Deleuze and Guattari's thinking in the field of ECE, Olsson (2009) highlights those inspired by their work and who focus on ECE research incorporating post-structural and deconstructive frameworks which analyze, deconstruct, and challenge "taken for granted truths about children, childhood, preschool, and preschool teachers" (p.33). Inspired by Foucault, Olsson shares that such research focuses on recognition and representation by locating early childhood education as part of a wider context of governing and subjectification, as "[t]he normalization of the child entails representing, classifying and measuring of the child, through the concept of 'developmentality', which has led to inclusion and exclusion of certain ways of being a child" (ibid. p.34). Olsson argues that such research can open up new ways of thinking, as critical pedagogues recognize and seek more holistic ways of teaching and care, such as in Reggio Emilia, where observation and documentation are seen as a form of construction rather than supervising devices, "a form of visualization, which brings *forces* and *energies* into a project work" creating spaces for "new possibilities and transformations" (Olsson, p.41, quoting Dahlberg, 2003: p.283-284). Such pedagogy promotes a critical focus on the stories which we tell in/through education, and their impacts.

Developmentally Appropriate Practice (DAP), a pedagogical framework which merges learning experiences with children's play-based staged of development, grew out of the push towards professionalization of early childhood education and care (ECEC) in the United States in 1987, namely, "to make the early childhood curriculum overly academic and provide a theoretical and research evidence base" (Cutter-Mackenzie, Edwards, Moore, & Boyd, 2014, p. 16). The 'scientific' and 'universal' framing of play and ECEC through DAP made it attractive to policy-makers and educators around the world (Pearson & Degotardi, 2009). Critics like Pearson and Degotardi (2009) point out its dominantly Western foundations, as DAP "is shaped by individualistic notions of child development…underpinned by child-centered learning and teaching approaches that emphasize children's cognitive, social and emotional, physical and academic competencies" over abilities that may be highly valued in the majority world, such as learning from community elders, connections with nature, and traditional knowledge (p. 100). We see these historic influences on contemporary ECEE as Cutter-Mackenzie et al. (based in Australia) describe a 'typical approach' to early childhood science education, where "children are happily engaged in playing outside and experiencing nature whilst participating in an open-ended play-based activity" (p. 2). Highlighting changing understandings and responsibilities, they point to the growing research literature arguing that such uncritical "exploratory" outdoor play does not go far enough to facilitate/support children's developing environmental attitudes and dispositions towards sustainability (ibid.). In response to DAP, 'postdevelopmental' perspectives have been developed from contemporary post-modernist, post-structural, sociocultural and sociological engagement with ECE, offering pedagogical understandings which explicitly include interactions, relationships, and systems, by considering the sociocultural nature of children's learning and development (p. 18).

Toronto, Canada, is an interesting case study when investigating recent changes in ECEC globally, as Ontario cities "have the capacity and the responsibility for developing plans, setting service targets and providing funds, but with tight control exercised by the province" (Jenson & Mahon, 2001, p. 2). The city is moreover unique as it is viewed nationally as "an innovator and leader, with extensive expertise in planning, budgeting and administration" within ECEC service provision (Friendly, 2011). Provincial DAP-based education policy guidelines, like *Early Learning for Every Child Today*: *A framework for Ontario early childhood settings (ELECT)* (2007), are now being 'complimented' by documents informed with postdevelopmental perspectives, like *How Does Learning Happen? (HDLH?)* which is a framework guiding programming and pedagogy (Ontario Ministry of Education, 2014). Policy-makers claim to be increasingly embracing a view of children as "competent, capable of complex thinking, curious, and rich in potential… a valuable contributor to his or her surroundings, and deserv[ing] the opportunity to succeed" (Ontario Ministry of Education, 2014, p. 6). Referencing Malaguzzi's Reggio Emilia Approach (1994), the Ontario policy document *HDLH?* likewise imagines "the environment" as "the context in which learning takes place…"the third teacher" …mirror[ing] the ideas, values, attitudes, and cultures of those who use the space" (p. 20). Arguably, the 'natural world' is discussed in fairly vague terms throughout *HDLH?*, despite underlying the importance of providing daily opportunities to children to "explore, care for, and interact with the natural world" as it "contributes to children's mental, physical, emotional, and spiritual health and well-being" (p. 21). *ELECT* (2007) and *HDLH?* (2014) are used in daily pedagogical practice at site 1 and, as a part of site 1's licensing requirements, inform my understandings of ECEC in Ontario.

While policy documents offer optimistic visions of ECEC and the power of learning, Toronto is dealing with a childcare 'crisis' wherein educators experience low wages and precarious work

(Ferns, 2017), the city faces the highest childcare rates in the country (Jenson & Mahon, 2001)[2], and families who can afford to pay fees still face long wait lists "due to significant shortfalls in available regulated spaces" (ibid.). While this political issue has critics like Ferns (2017) calling for a system overhaul, Karia's (2014) timeline on the evolution of kindergarten in Ontario notes a promising major shift in thinking, with growing provincial recognition on the importance of ECEC in *The Full-Day Early Learning Kindergarten Program—Draft Version* (2010–11) (Karia, 2014, p. 11). Despite this recognition, however, ideas of 'quality' and resulting criteria requirements in the before school years are still largely shaped by DAP understandings. For example, at site one, the childcare Centre in Toronto, the Centre has a service of purchase agreement with the city. This means that the Centre follows guidelines and policies from both the Ministry of Education (a provincial body) as well as the City of Toronto Operating Criteria (a municipal body). Despite the inclusion of more postdevelopmental pedagogical theory in ECEC documents, in practice, DAP is still at the forefront when it comes to criteria requirements and quality assessments (AQI) for child care Centres in the city (City of Toronto, 2017). In proposing this study, I wondered if the pedagogical space created from collaborative inquiry-based learning within an explicitly ECEE project (focused on exploration and experimentation) might be a way for educators and children to challenge the individualistic learning narratives of DAP which underpin so much of ECE dominant practice and 'requirements'.

Addressing the increasingly risk-averse culture of Western dominant ECEC, New, Mardell, & Robinson (2005), argue for the growing need for risk-rich curriculums and collaborative inquiry in ECE settings. Highlighting the risks of education which avoids all potentially 'unsafe' activities,

[2] While this source is seemingly outdated, Friendly argues that "there has been no resolution of many of the pressing issues" and a lack of more recent writing suggests that this is holds true (Friendly, 2011, p. 2)

they call on adults to be 'collaboratively courageous', to share a common "willingness to embrace unknown territories, new ideas, and new relationships" and embrace "curiosity and imagination as well as faith in the collective intelligence of teachers, children, and families" (p. 13). Similarly, questions over ECEC 'professionalization' in the province have been raised by Khattar & Callaghan (2015), illuminating how, as the world moves towards more critical and ethical understandings of children, the environment, and purpose of education, ECEC stakeholders and policy-makers locally must collaborate to better incorporate theory, practice, and support pedagogical exploration(s) in these changing and risky times. While the *HDLH*? (2014) document organizes itself around four foundations "that are important for children to grow and flourish: Belonging, Well-Being, Engagement, and Expression", I wonder, what might stories extending this pedagogical understanding to explicitly incorporate EE within ECE reveal? (p. 7). I believe that pedagogical storytelling might illuminate and contribute to the global movement towards a more holistic integration of ECE and EE through cultural, curriculum, and structural change—through broader stakeholder collaboration and response—facilitating multiple benefits across communities locally and addressing broader societal issues related to health and wellbeing globally. This is the daunting challenge which ECEE educators face and one that I take up here as a practitioner and researcher.

1.1.2 Building Community Through Shared Affinities

After taking part in the Las Nubes Semester Abroad, I shared some of my learning and forest experiences with the Toronto childcare Centre where I have worked as an assistant teacher since 2011. Children and adults were especially interested in the wildlife which I had encountered. I made a short picture book about my time in the ASBC for the Centre's science table. The preschoolers were very interested in the book and asked many questions. This led to discussions

on the shared migratory species which we had in our nearby forest. Many in the childcare Centre's community likewise expressed that they wanted to learn more about local species, and to look for those which we shared with the ASBC. Seeing the potential for a cross-community ECEE learning opportunity, I consulted with staff and parents, and as a group we decided to begin a project pursuing these participant-led interests (see 3.1).

The project was largely inspired and informed by Natalie Cummins and Olivia Caravaggio's project Semilla: A Community-University Partnership for Environmental Education, which produced *Semilla: An Environmental Education Resource* and *Community-University relations and partnerships in the Alexander Skutch Biological Corridor: Community voices and recommendations, findings summary* (2017a)*;* (2017b). These documents were created through their EE experiences working with the community and provide vital information and tools for carrying out similar research projects. While their Findings Summary highlights place-based ethical considerations for environmental education researchers looking to do work in the ASBC, *Semilla: An Environmental Education Resource* joins "community thoughts about environmental education with practical experiential learning activities that can be used in a variety of settings" (2017a, p. 10). Theoretically framing this project as a praxis-oriented collaborative pedagogical inquiry, I was especially interested in engaging with the literature on, and drawing from methods such as, youth participatory action research (YPAR) and action research (AR) as they provided inspiring stories of engaging with children and community agency (Boileau, 2013; Green, 2015; Langhout & Thomas, 2010). Through participant engagement, such practices informed activities carried out in the study while exploring what pedagogical methods might be developed and enacted within such a transdisciplinary project. Boileau (2013) argues,

> it is essential for researchers to utilize developmentally appropriate research tools and data collection methods, just as environmental educators should create programs that are congruent with the emotional, physical, and cognitive abilities of young children (p. 142).

With this in mind, I consulted with EE and early childhood educators throughout the study, as well as other adult and child participants, to explicitly and collaboratively work on supporting and building on participant capacities through individual and group experiences of 'learning by doing'.

A critical focus on ethics permeated this study, as human participants included young children, educators, and families with a broad range of experiences, understandings, and needs. Incorporating a community ethics focus, the study was open to adapt to different participant (individual as well as community) needs, ideas, and capabilities throughout planning, activities, and data collection (Flicker, Travers, Guta, McDonald, & Meagher, 2007; Morrell & Carroll, 2010; Cummins & Caravaggio, 2017b; Boileau, 2013). As participants were to be exploring and engaging in/with the more-than-human-world[3], I considered literature sharing broader and politicized understandings of community and environment(s) (Fawcett & Johnson, 2019; von Benzon, 2018; Taylor, 2017). Utilizing observation, documentation, and reflection, forest walk facilitators made adjustments and looked for ways to deepen explorations based on the group's varied experiences and interests. Ontario's How Does Learning Happen? (HDLH? 2014) and Early Learning for Every Child Today (ELECT 2007) documents were used by the Toronto child care Centre's staff in daily activities and contributed to my pedagogical understandings of teaching and facilitating young children's learning. This project was also largely informed by knowledge shared in Semilla (2017a), as the study sought to learn from and build upon the community knowledge

[3] While the term 'more-than-human world' will be used throughout this study as it is used in much ECEE literature to describe the 'natural world' (including plants, animals, organic, inorganic life, etc.), it must be noted that there is an on-going naming debate, as critical researchers consider less human-centered terms—recognizing that we are a part of larger systems. For example, Fawcett and Johnson suggest 'coexisting entities' as term meant to be more inclusive and less hierarchical (2019).

and EE interests shared in the document. As learners and educators 'introducing' ourselves to ECEE through this project, we asked ourselves and our students *'what do we know? what do we want to learn more about? and what actions can support this?'* Based on the resulting experiences and findings, this paper will focus on sharing and analyzing narratives which grew out of the collaborative ECEE project.

Figure 2: Site 1, a preschooler holds a snail shell found in the forest

2 Literature Review

The literature reviewed in this section discusses transdisciplinary academic narratives associated with EE, ECE, and ECEE research which informed my research interest. Exploring stories of diverse, contested, and emerging understandings and perceptions on how children ought to be educated about the environment illuminates the ontological, epistemological, methodological, and political influences on ECEE and resulting practice(s). Learning about and recognizing these influences and their impacts offers a theoretical basis for critical analysis as "narratives do political work" (Riessman, 2008, p. 8). I hope to situate the study within conversations of educators, researchers, and communities facilitating and inspiring stories of positive environmental engagement and action. The following outlines some of the study's major theoretical considerations towards engaging in an ECEE project. It highlights the importance of teacher collaborative inquiry as well as some critical distinctions/contestations within the academic literature on the natural environment, ECE research, and critical ECEE research.

2.1 On Engaging in ECEE Research with Children

The age range in early childhood education is typically considered birth to age 8. Ontario's ELECT (2007) document provides valuable overlap when categorizing children's developmental age ranges, "reflecting that the sequence of developmental skills will be achieved within a broad range of time" (p. 17). The document recognizes each child's individual growth, and groups ages as: infants—birth to 24 months, toddlers—14 months to 3 years, preschool kindergarten—2.5-6 years, and school age—5-8. At the study's site 1, the preschool age group ranged from 2.5-4 years old,

as 4-5 year old children in the province typically enroll in Full-Day Kindergarten before beginning school at age 6 (Ontario Ministry of Education, 2016).

Research and policy focused on the before-school-years is becoming increasingly common (Green, 2015). Play has historically been a dominant feature of Western-European ECE pedagogy (Cutter-Mackenzie et. al., 2014, p. 11). Some scholars highlight influential theorists like Rousseau, Froebel and Dewey, who "dramatically changed societal views and attitudes towards children…through the strongly held belief that play was critical to children's learning and development"—while also being strong advocates "for children learning in, and from, nature as active learners" through observation and interaction (ibid.). Despite a tradition of work including Malaguzzi (1994) and Freire (2015) addressing the dangers of passive learning, Corcoran (1999) notes "the disempowering quality of much education and its failure to teach responsibility to the environment" (p.180). Interrogating cultural influences, Von Benzon (2018) provides a brief yet captivatingly critical review of Western news media, public policy, dominant schools of thought in environmental psychology, and qualitative research, which romanticize children and nature. She describes the narrative of the "naive and innocent, heteronormative, able-bodied and neurotypical child [that] has the potential to enjoy a positive, and symbiotic relationship with 'nature'" as well as the growing "public rhetoric of the 'denaturization' of childhood" (p. 2). Through field experience with learning-disabled high school children, she found the youth to share an essentialist perspective of nature, viewing themselves as 'marginalized city-dwellers', and as such, considering themselves removed from nature (p. 5). Such work challenges romanticized ideas of children and nature, as it includes conversations on risk and danger as both barriers and opportunities influencing and influenced by interactions with our surrounding world(s).

In seeking to conduct research with young children, it was important for me to explore academic narratives supporting educators in empowering and facilitating children as active learners. The stories that we tell ourselves, what we share with others, and what we are told by others, affect us in very intimate and political ways (Riessman, 2008). Here I am drawn to a quote by Thomas King (2003) who reflects in "'You'll Never Believe What Happened' Is Always a Great Way to Start", "[t]he truth about stories is that that's all we are" (King, 2003, p. 2).The emerging field of Youth Participatory Action Research (YPAR) is comprised of academic stories exploring and highlighting differently-positioned guiding paradigms and theoretical traditions of work used in research engaged with children as active 'collaborators' (Langhout & Thomas, 2010). Green (2015) while critically examining the theories, methodologies, and methods used in early childhood environmental education research from 2004–2014, illuminates the different levels of children's engagement and input in such academic research narratives. Boileau (2013) lists barriers and challenges when conducting research with young children, which include: adult perceptions of children, children's rights and ethical issues, obtaining consent from both parents and children, and communicating with young children—arguing,

> If we are to truly listen to young children, we need to see the world from their perspective, which is very difficult. We need to see children as having different ways of understanding the world, which are equally as valid as ours. The adult researchers need to listen, watch, and allow space for the child, and to change or relinquish some of their own predetermined research agenda and methods (p. 147).

Preparing myself to narratively express and reflect on experiences, research and collaboration in this ECEE study, I was drawn to critical pedagogy and YPAR narratives, especially as such work is often framed in a hopeful, pedagogically stimulating, and/or 'difficult to do, yet essential' light (Bautista, Bertrand, Morrell, Scorza, & Matthews, 2013; Boileau, 2013; Cutter-Mackenzie,

Edwards, Moore, & Boyd, 2014; Green, 2015; New, Mardell, & Robinson, 2005; Torres & Reyes, 2011).

2.2 Sharing Different Perspectives in the Forest

In exploring the literature on forest/nature engagement, research tends to fall between two categories: the first is the 'sensory' forest which explores the benefits and/or people's perceptions of being in nature (Soga & Gaston, 2016; Karjalainen, Sarjala, & & Raitio, 2010; Faber Taylor & Kuo, 2008; Skår, 2010; Sobel, 2013). The second category is the 'political forest', where critical theorists engage with political theory and realities of being in nature—including gendered, racialized, and anthropocentric understandings (Taylor, 2017; von Benzon, 2018; Fawcett & Johnson, 2019; Pacini-Ketchabaw & Taylor, 2015; Calderon, 2013; Marin & Bang, 2018; Tsing, 2015). In this latter category, researchers share, unpack, and analyze narratives of justice and ethics within individual and group experiences in/with/for the natural world. Moreover, they often imagine 'new possibilities' of understanding, being in, and engaging with the natural world (Weston, 2012; Tsing, 2015). Within this is a growing movement of research providing critical pedagogy perspectives challenging our (personal and societal) views of 'the child' and 'nature' (Boileau, 2013; Cutter-Mackenzie, Edwards, Moore, & Boyd, 2014; Fawcett, 2014; Green, 2015; Hodgins, 2019; Pacini-Ketchabaw & Taylor, 2019). Narratives within these sites of transdisciplinary (border-crossing) work share and explore dynamic stories of place, connection, and interspecies meaning-making with others. Such research aims to unsettle taken-for-granted assumptions by exploring more ethical ways to live for all, often through problematizing cultural understandings and/or a specific focus on listening to/for marginalized voices (ibid.). Praxis (where theory and practice inform each other) is a term that has become important to the stories that I tell myself, and as Freire (2015) warns, this requires never separating identity and experience

from issues of power and history. For example, a critique which I would have never considered had it not been introduced to me by a colleague comes from Calderon (2013), who argues that place-based learning perpetuates the normalized settler colonialism ingrained in American social studies curriculum. Calderon calls for a centering of indigeneity in the curriculum to address this, through embracing a rigorous land education (ibid.). Before this, I had thought of place-based learning as 'the answer' to teaching environmental care and responsibility—it took introducing myself to someone else's story and research to get me to problematize and begin to unpack my pedagogical thinking. Prior to this, I had not recognized the politics and power struggles in the place (Canada) where I was using this pedagogical method. In recognizing the gaps in my knowledge, I felt responsible to continuously pursue and explore more critical and pluralistic understandings of ethics and pedagogy through a focus on politics. This is where sharing and engaging in transdisciplinary understandings can support further border crossing (of traditions and place) collaborations, allowing knowledge and positive action(s) to grow.

Adding to changing understandings in/with research narratives, while calling for a reframing of our relations with landscapes, environments, plants and animals, Von Benzon proposes a postructuralist definition of nature that is fluid and relational (2018). Shaping our ethical understandings, this suggests approaches interrogating "…structures, materials, activities and relationships in these spaces that benefit young people"—problematizing the idea of 'nature' as "itself a healer, an educator or an agent for social change" (p. 3). Following this idea, associated activities in 'nature', such as free play and independence, could then be considered vital co-constructs with 'childhood' as opposed to fragmented time spent in idealized natural spaces. Within this call to engagement beyond nature, Von Benzon points to place-based education as a pedagogic philosophy facilitating "the development of deep connections between children and their locale,

both their environment and their community, their own materiality and their own culture" (ibid.). As a researcher, I was interested in how engaging pedagogically with(in) diverse ECEE stories and theory—including situated and place-based ethical framings recognizing and responding to agency within the more-than-human world—might inspire positive environmental community action(s) involving a broader range of stakeholders. One such investigation inspiring this interest occurs in *"Look It, This is how You Know:" Family Forest Walks as a Context for Knowledge-Building About the Natural World*, where a methodology of walking, reading, and storying land, is developed by Marin & Bang for learning about and coming to know one's place in the natural world—their work that has been embedded within Indigenous ways of knowing for generations and "reflects different ontological premises about the capacities of more-than-human (MTH) life" as well as lived human-nature relations (2018, p. 89). Exploring "how knowledge about the natural world arises through joint activity that is situated in place", they share a case study on how young people make meaning of the physical and biological worlds which they move through (p. 89). An intriguing and emerging pedagogical focus, they explain, "[a]s a field, we are still building methods and tools to account for the role of place and movement in learning" (p. 90). Such research explores and considers systems and relationships alongside young people, often offering alternative cultural perspectives for EE, ECE, and ECEE educators to reconsider in their own work.

While participants in this study did not identify as Indigenous, I was inspired by Indigenous research approaches and methodologies—particularly as they aim to 'decolonize' the research relationship through acknowledging the need for ownership, control, access, and possession of participant knowledge—all integral parts of doing ethical research in a 'good way' (Kovach, 2009; Fawcett & Johnson, 2019). Moreover, as educators and others share and respond to recommendations from the Truth and Reconciliation Commission (2015), there is an increasing

recognition for the need to “bring Indigenous perspectives into the heart of Canadian educational settings and curricula, most notably in connection with environmental issues” (Anderson, Chiarotto, & Comay, 2017, p. 2). I thought it important to incorporate “[b]uilding student capacity for intercultural understanding, empathy, and mutual respect” by asking educator participants—when discussing understandings (of places and species), including Indigenous perspectives—to explicitly refer to their sources and explain where they came from (Truth and Reconciliation Commission of Canada, 2015, p. 239). Likewise, when sharing EE resources with participants based on their interests, I aimed to incorporate a broad range of diverse understandings and stories by including primary and secondary Indigenous sources alongside other resources. Incorporating such cultural perspectives contributed to exploring and experimenting with pedagogy facilitating more diverse, interconnected, and relational understandings.

2.3 Critical Environmental Education

Positive environmental engagement and action are core practices in environmental sustainability pedagogy and discourse, and the concept of environmental justice is often connected. In *Defining* E*nvironmental Justice: Theories, Movements, and Nature*, Schlosberg (2007) discusses the varying understandings of EJ around the world and calls for "a pluralist approach”, uniting different concerns and global movements under the broad frame of Environmental Justice (EJ). Succinctly put:

> “the point is to expand the discourse of justice, and legitimize the use of a variety of tools and notions as they apply to various cases. Issues of inequality, recognition, participation, and the larger question of the capabilities and functioning of individuals and communities—human and nonhuman—can come together in a broad and inclusive discourse that can strengthen the explanatory (and mobilizing) power of the movements that use the language of environmental and ecological justice” (p. 8).

Similarly, educators interested in engaging with EJ and ECEE must navigate the interdisciplinary tensions and possibilities between facilitating positive experiences in 'nature', teaching about the environment and environmental issues, and equipping young children to be active citizens in their communities. Mindfully, Mueller warns of the possible pitfalls within less pluralistically inclined pedagogies such as ecojustice education which focus on 'crisis thinking' (Mueller, 2009). Moreover, those working with young children face unique challenges in working within and/or overcoming the local institutional, political, and cultural barriers which shape ECEC. Davis (2009), whose often-cited research is on early childhood education for sustainability (ECEfS), a branch of ECEE which grew out of the 1987 Brundtland Report, found a literature gap internationally on the "before-school years" in research journals (1996–2007) which illuminates a pattern of academic focus, understanding, and research with limited possibilities for ECE and EE as simply education *in* the environment and/or *about* the environment, as opposed to (what she and others note as) the transformative education *for* the environment inherent in environmental justice (EJ) (Boyd, 2018) (Davis, 2009, p. 229). Davis' findings show that the dominant theory and practice being shared within ECEE lacked a critical discourse on power and politics, especially as young children were not viewed as possible 'agents of change' (ibid.). Similarly, when exploring injustice through dominant cultural constructions of childhood, Lam (2013) noted, "some early childhood educators have argued that the predominant knowledge base grounding the field actually serves to maintain the status quo, perpetuates stereotypes and prejudices about children, and ignores their real life" (p. 121). As a follow up to Davis, Hedefalk et al., (2015) analyzed research on early childhood education for sustainable development (ESD) published from 1996 – 2013 (p. 976). Their work follows an evolution in interdisciplinary ECEE "from teaching children facts about the environment and sustainability issues to educating children to act for

change" (p. 975). Like Davis, they find perceptions of ESD to cover education *about*, *in* and *for* the environment, however their analysis further includes a pedagogical definition of ESD as an "approach to education that includes three interrelated dimensions: economic, social and environmental" (ibid., p.978). This definition, stemming from United Nations (UN) documents, has been criticized for framing the environment and education in economic terms (Sauvé, Berryman, & Brunelle, 2007; Ideland & Malmberg, 2015; Jickling & Wals, 2008). Additionally, these critics point out the UN's institutionalization of ESD, arguing that it has marginalized other traditions and possibilities within EE pedagogy (ibid.). That is, "it can be argued that using education to 'implant' guiding principles is essentially 'un-educative' at best and 'mis-educative' at worse", especially as the focus of transformative education should be on learning *how* to think as opposed to *what* to think (Jickling & Wals, 2008, p. 12). One's ontological positionality has direct pedagogical effects, and Hedefalk et al.'s own findings on teacher understandings of ESD, were that "[t]here is an assumption that if children know enough about the environment they will automatically act for change by taking care of the environment" (p. 981). Many have found, however, that nature experiences and knowledge do not automatically lead to caring, commitment, and action (Russell, 1999).

2.4 Emerging Understandings in ECEE Research Narratives

As new ECEE resources and 'best practices guidelines' emerge from groups like the North American Association for Environmental Education (NAAEE) (2016), critical theorists are responding to the United Nation's (UN) push to make environmental education mainstream, its broad guiding principles and depoliticization of environmental education in dominant global narratives, by calling for a paradigm shift 'beyond stewardship' (Taylor, 2017). They argue for a

de-centering of the human through ‘common worlds’ pedagogies which better respond to and explore the global narrative of shifting focus of our understandings on humanity, the environment, research, and agency (ibid.). ‘Common world pedagogies’,

> seek to move beyond the limits of humanism and environmental stewardship by acknowledging more-than-human agency, learning with more-than-human world rather than about it, paying attention to the mutual affects of human-nonhuman relations, pursuing more-than-human collective modes of thought, and by learning from what is already happening in the world (Taylor, 2017, p. 1449).

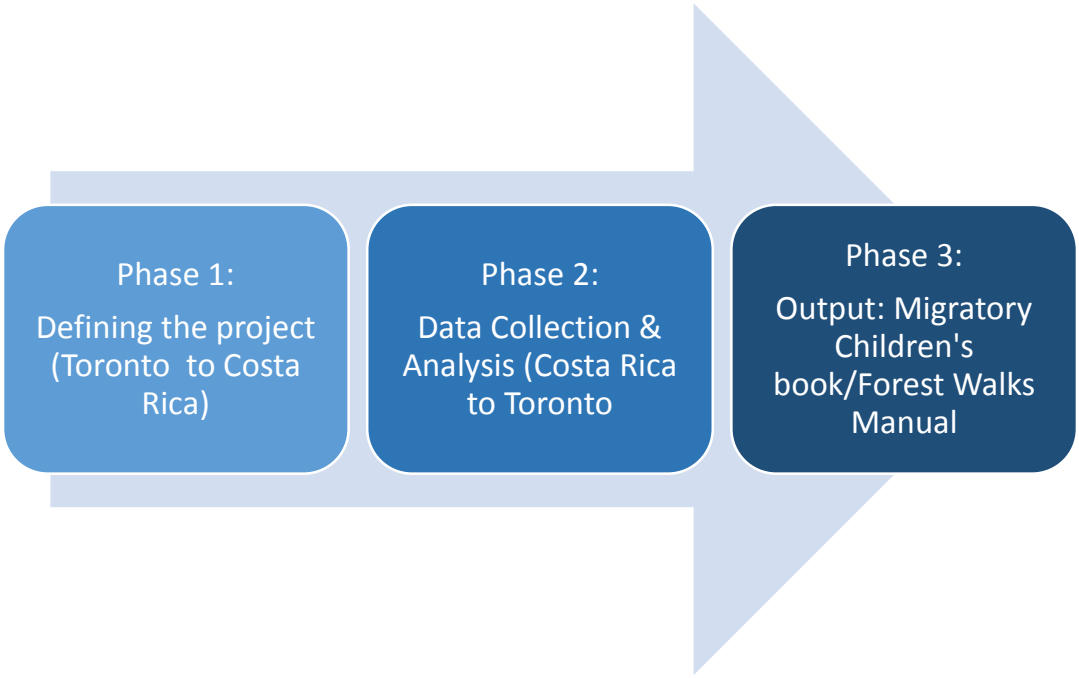
Such ontological considerations related to ethics were explored in study, as the broad range of participants were encouraged to share, experience, and reflect on pluralistic understandings of their environment(s) and others within the project. The increasing openness in researcher narratives to listen to/for critical discourses on power and politics in relation to children and the environment is framed by an ontological repositioning of childhood and learning “within inextricably entangled life-worlds, and seek[s] to learn from what is already going on in these worlds” (ibid., p.1498). For the Common Worlds Research Collective this includes exploring contested spaces and ‘more-than-human framings’ through two strands of inquiry: feminist common worlds methods, and; inquiries into children’s common worlds relations with place, with the material world, and with other species (Torres & Reyes, 2011); (Hodgins, 2019); (Pacini-Ketchabaw & Taylor, 2015); (Pacini-Ketchabaw & Taylor, 2019) (Taylor, 2017). Such critical pedagogy aims to facilitate more subjective, reflective, and collaborative learning environments for all. Such research movements contribute to more nuanced nevertheless pluralistic understandings of environmental education in the Anthropocene by focusing on diverse participatory research and stories problematizing taken-for-granted assumptions and exploring new possibilities in/for/with ECEC and Environmental Justice movements more broadly.

3 Methodology

Considering the inquiry-based nature of this emerging ECEE project, the project proposed exploring the following questions:

- How might a group of Toronto daycare students, their families, teachers, interested members in the Las Nubes community, and myself (a FES researcher), collaboratively work together to engage with, learn about, and reflect on our local 'natural worlds' in dynamic, collaboratively-border crossing, ways?
- What co–constructed experiential narratives might be 'storied' as pedagogical lessons of engaging with ECEE? How might the outcomes from the project impact others?

In response, my research explores these questions through the following phases:



3.1 Phase 1: Defining the scope and theme of the project in collaboration/consultation with participants

3.1.1 Choosing sites

Two sites were chosen. The first, a childcare Centre in Toronto, Canada and the second one among interested participants through La Casita Azul, a local education and learning resource center managed by the York University Libraries in the ASBC, Costa Rica. At each site, those interested in participating in the study were categorized between two levels of proposed engagement:

1.'Facilitator/educator participants': chosen based on their interested in collaborating on the pedagogical aspects of the study, namely, planning, and/or facilitating work and activities related to the project. These participants had experience in EE and/or ECE pedagogy, and were interested in capacity building, resource-sharing, sharing their pedagogical understandings, contributing to decision-making—in consultation with other participants, and facilitating group learning.

2. 'Participants': this group included children and their parents/guardians who were interested in participating in the study and could choose their level of engagement. These participants were asked to share their ECEE interests and knowledge, engage in learning by taking part in activities and reflecting on them, and contribute to the project's output.

3.1.1.1 Site 1

Because of my place working at the Centre, I was cognizant of the unique position of simultaneously being a colleague with staff, teacher with children and parents, and a university researcher. Due to the Centre's policies, participation in project activities was open to all at children, however, data were not collected on individuals who were not formally taking part in the project. Selection for project participants was based on who showed interest in engaging in ECEE activities related to the emerging project, had signed consent forms, and children who had signed parental approval.

Figure 3: Site 1, children's displayed artwork in the toddler room

Participants included staff from all groups, preschool children, and parents. For the forest walks aspect of the project, participants were chosen based on these requirements and having appropriate attire.

3.1.1.2 Site 2

The idea of involving participants in Costa Rica at site 2, the ASBC, stemmed from site 1's interest in the ASBC community—as they were inspired by their EE community work and were interested in collaboration. Defining the scope of the project and choosing a site in the ASBC required consultations with Natalie Cummins and Olivia Caravaggio, York University professors who took

part in the Semester Abroad—Ana Maria Martinez, Leesa Fawcett, Martin Bunch, Ravi De Costa, Felipe Montoya, and Steve Alsop—and members of the ASBC community. Without a nearby child care Centre, and knowing that children were predominantly cared for solely by family in the before-school years, the local library, La Casita Azul was chosen as a project site and advertised "Caminatas en Las Nubes" forest walks for children to the local community. The Las Nubes EcoCampus was chosen as a site for the forest walks, largely because of community interest in more opportunities to learn about the local environment through increased access to the EcoCampus (Cummins & Caravaggio, 2017b). While Cummins & Caravaggio shared a community member's call for "more communities in the ASBC, beyond Santa Elena and Quizarrá" to be involved in the University's research, the scope of this project limited participation to those interested in the project who had access to Casita Azul on the scheduled days and families with young children who the researchers had connections with (p. 5).

Figure 4: Site 2, the Las Nubes EcoCampus

Participants were chosen based on who signed up for "Las Nubes Forest Walks" advertised through Casita Azul (at the library and through online posts on their Facebook page). Underage participants required a parent/guardian to accompany them, signed parental consent, and appropriate attire. The participants would meet at Casita Azul once a week over 3 weeks and

participants could choose their level of involvement in the project. Home visit participants were those with young children, who were interested in the ECEE nature of the project, but were unable to attend the scheduled walks. Incorporating home visits into the project was meant to address the lack of a daycare Centres in the area.

3.1.2 Choosing a Project Theme and Process Planning

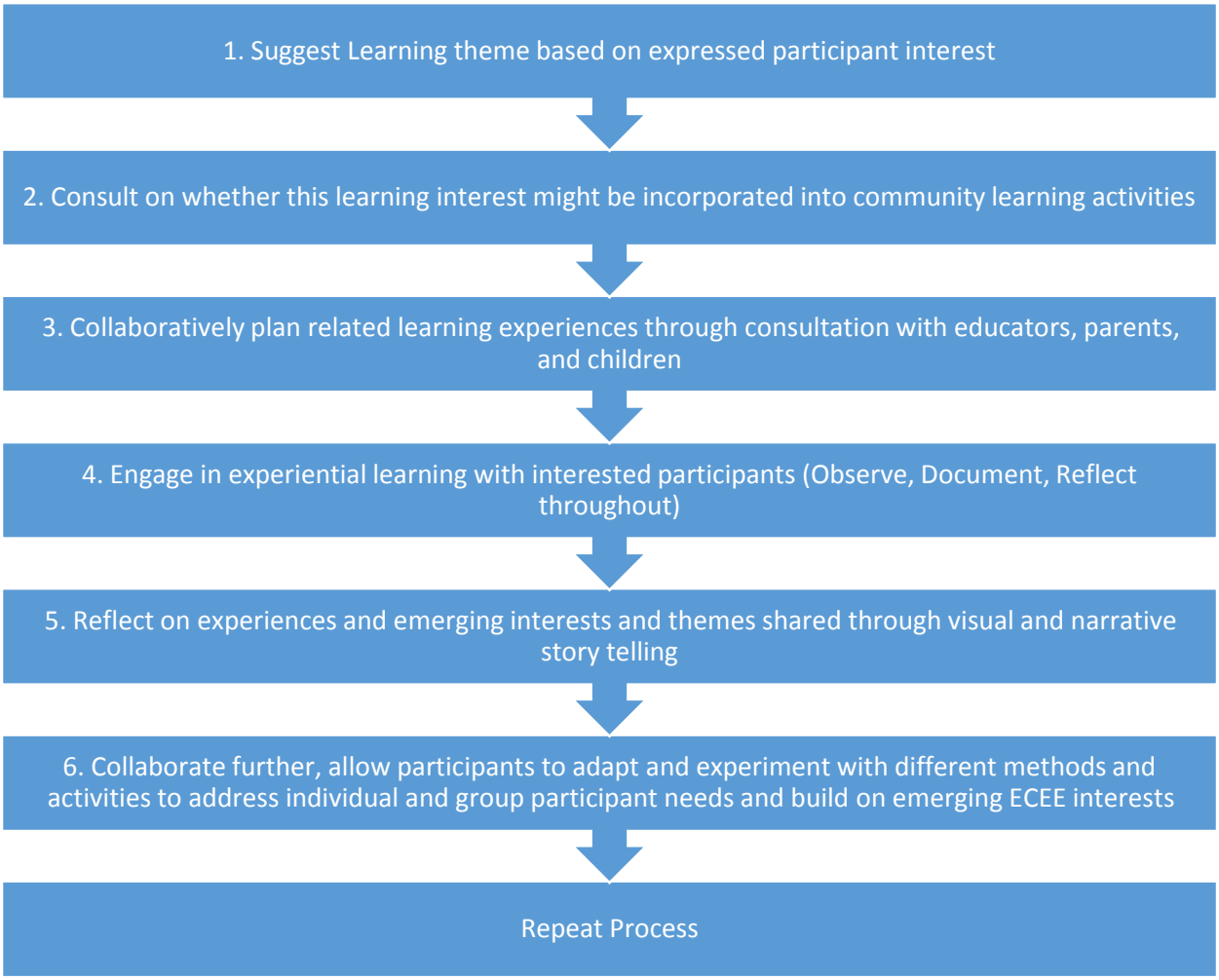


Figure 5: Structure of ECEE pedagogical process and project theme planning within the study

Figure 5 aims to capture the cyclical and collaborative process which emerged while choosing a project theme and process planning. Initially, I suggested a focus on migratory species between

both sites, with the knowledge created/shared culminating in a children's book, made with the children involved, on migratory species of interest.

Figure 6: Site 1, children's painted bird finger puppets

After ongoing consultations and personal observation at both sites, I decided to adapt the project to incorporate participant's newly expressed and more diverse EE interests and experiential learning as much as possible. As in other projects involving young children, artwork would be used to gain insight on participant perceptions and interpretations as well as track participant's perceptual shifts through learning (Fawcett, Kinship Imaginaries: Children's Stories of Wild Friendships, Fear, and Freedom, 2014). Participants expressed a desire to pursue group forest walks with children while learning about ecosystems and supporting shared species through various learning activities and arts-based methods. Data Collection was geared towards observing, documenting, and reflecting on participant knowledge and informing the project's proposed output—aiming to share participant ECEE knowledge in an accessible format for participants themselves and more broadly. We were interested in building participant learning capacities in EE and ECE (based on individual and group interests), learning from others (the more-than-human-world included), and sharing participant's understandings through arts-based methods, observation, and documentation (Green, 2015; Langhout & Thomas, 2010; Pacini-Ketchabaw & Taylor, 2019; Fawcett, 2014).

3.2 Phase 2: Data Collection and Analysis

Framed as a pedagogical inquiry, I explored the process, experiences, and knowledge created through this inquiry-based community ECEE study in/between two sites. Through participant engagement, a multi-method framework emerged, exploring and gathering participant voices and experiences through field notes, photographs, and artwork created over involvement in the project (Boileau, 2013). Similarly to Figure 5, this followed a process of ongoing group collaboration and consultation in and sometimes between each site. I consulted with interested participants (and they would often consult between each other within Sites), to learn, experiment with, and decide on what data we wanted to analyze and what we would consider within analysis. Participants chose how they wanted to engage in the project, what data they wanted to contribute within the project, and towards the project's output/knowledge dissemination. Consent forms and consultation were used to learn what information participants were comfortable sharing (as individuals and communities at/between each site) and in what contexts. Consultation and active participant engagement at both sites before, during, and after pedagogical planning, activities and project reflection, directly shaped the project and its data collection and analysis (Figure 5). Data were analyzed while still in the process of collecting, to adapt activities and learning goals based on participant engagement (Morrell & Carroll, 2010) (see section 4.4.3 for example). Blending data collection and analysis supported an iterative, praxis-based collaborative pedagogical process within the study—where, utilizing co-constructed narrative inquiry, I was able to consult and work with interested participants at both sites to continually refine coding and sense-making and respond to emerging individual and group capacities and interests (Riessman, 2008). In practical terms, this means that changes in protocol were possible, as we (myself and other educator/facilitator participants) experimented, analyzed, and adapted the project alongside parent and child

engagement to explore ways of better incorporating individual and group ECEE interests and understandings into such community learning. In sum, data collection and analysis methods explored in the project aimed to follow and represent a cycle of learning experiences which collaboratively and critically planned, facilitated, and reflected upon each step of the project as it developed. Within Figure 5, I saw the project as following a praxis-inspired iterative cycle of group planning, action, and reflection (Freire, 2015).

Field notes collected through participant observations were analyzed as an *active recording*, recognizing that those contributing to field notes were expressing and sharing their "personal practical knowing" (Connelly & Clandinin, 1990, p. 5). At site 1, included alongside field notes were journal records from (1) a collaborative forest walks journal shared by educators and (2) an ongoing forest walk "poster" created as the project emerged, where preschool children collaboratively shared their experiences after going on each forest walk. Likewise, participants at both sites engaged in storytelling to share their past experiences as well as to describe their work and experiences within the project. Analyzing and adapting the project to respond to such narrative data sources informed the meaning-making which occurred in consultation with educators, parents, and children. Submitted drawings offered researchers "very open assessments with few limitations placed on responses" (Dentzau & Gallard Martínez, 2015, p. 144). Wherever possible, images taken or created during activity experiences were reflected on by participants—either in the moment and/or at a later time (see 4.5.1.). Field experiences were sites of learning, where protocols were often changed and adapted based on emerging participant capacities and interests (Boileau, 2013; Green, 2015; Langhout & Thomas, 2010). The data collection and coding processes likewise incorporated "epiphanies"—remembered moments perceived as significant to the project (Ellis, Adams, & Bochner, 2011). Moreover, I took a research approach which aimed to locate, recognize,

and build on activities—which participants were interested in exploring—as potential sites of EE and ECEE experimentation and reflection. The following describes the pedagogical activities carried out in the project.

3.2.1 Site 1

As participants hoped to find migratory birds and join these experiences with other learning activities, at site 1, the childcare Centre staff was open to integrating materials and activities related to the project in all aspects of daily activities and learning areas. The on-site work took place between May 22-August 20, 2018 and September 12-November, 2018 with 25 preschool participants (and their parents/guardians), 1 toddler, and 11 (12 with me included) staff. Staff were already experienced in planning learning activities, writing observations, and documenting activities. We agreed as a group that time to 'work' on the project (which included data collection) would be left open to participants, asking ourselves and others questions like, *should this be included in the project?* and *what do we want to learn/teach through the activity/project?*

3.2.2 Site 1 ECEE Learning Activities

3.2.2.1 Circle Time

Figure 7: Site 1, ECE Roubina reading a story to children during Circle Time

Preschool groups would sit down together daily to sing educational songs, have group discussions, and read books. This time was led by a staff member and/or myself. In planning for circle time, staff and I discussed children's interests, learning ideas, and other ECEE-related themes which we could include during activities. For example, after the first forest walk, some children were interested in all of the fallen trees which they had seen and so educators planned a Circle Time focused on forests as interconnected systems, including books on plant lifecycles and a conversation on food webs (for example, we asked the children 'who eats who' to lead in to a conversation on how the fallen trees still support others in the forest). Circle Time group discussions with preschoolers helped in activity planning and reflecting on the project. Nature-based books would also be available to children to engage with on their own during and outside of Circle Time. Data were collected through field observation and reflection notes as well as photographs taken by me and other staff. Observations and documentation were collected and reflected on as co-constructed visualizations of classroom practices and project experiences, used to inform and follow the evolution of our narrative pedagogical inquiry (Riessman, 2008).

3.2.2.2 Sensory bin

Figure 8: Example of a site 1 sensory bin. Image taken by ECE Roubina

The sensory bin was an open-ended exploration of materials meant to engage children's senses. Some staff considered the bins as a tool to also bring the outdoors in, by incorporating certain materials. Up to 3 children at a time could engage with the sensory bin however they wanted to, and materials were changed every day. At the Centre, sensory bins were accessible during free play times throughout the day. Staff prepared the sensory bins with materials which were open-ended while also supporting pedagogical goals, such as building hand-eye coordination, exploring different smells, sounds, sizes, colours and/or textures, etc. Data were collected through group/individual discussions, observations of children engaging with the sensory bin, and photographs.

3.2.2.3 Science Table

Figure 9: Site 1, preschoolers at the science table

At the preschool room's science table, children could access tweezers, magnifying glasses, natural materials like pinecones and seashells, herb containers (to smell), a large indoor plant, and watering cans at any time throughout the day (Figure 9). The table also included books and resources, with new materials added based on children's emerging interests. Data were collected through group/individual discussions, observations, and photographs.

3.2.2.4 Arts & Crafts

Figure 10: Site 1, artwork from Victoria representing birds

Staff and I discussed arts-based methods which could help preschool-aged children express their ideas related to the project. Visual arts were submitted by the children and included reflections on forest walks and species of interest (Figure 10). While activities were suggested, children were

provided all kinds of different materials to choose from and could express themselves in any way at any time. Activities included collaborative forest maps using foraged materials, mask-making, bird finger puppet painting, and drawing. While planned art activities happened daily, creating art 'for the project' was not limited to any specific time, and children would hand teachers art that they wanted to include in the project and/or be asked for consent in sharing that art with others.

3.2.2.5 Drama

Figure 11: Site 1, Dramatic Centre area

The preschool room had a Dramatic Centre with different materials and costumes for the children to choose from (Figure 11). Staff planned weekly themes based on children's interests and added curated materials for children to engage with in open-ended ways. Examples of typical Dramatic Centre themes included: restaurant, construction site, zoo, and hospital. Preschoolers were comfortable engaging in dramatic play and would include other children and staff in their imaginings. The practice of imaginative play occurred outside of the Dramatic Centre, as well. Data were collected through field notes, reflections, and images.

3.2.2.6 Weekly group forest walks

Figure 12: Site 1, Helen leading an early forest walk. Image taken by Roubina

The Centre had gone on group forest walks when it had older children in the past, and staff were interested in starting up walks again with our younger preschool group, and me as a walk/nature leader. As the group became more comfortable going on these group forest walks, at times, other participants would take the lead on walks, sharing their own understandings, and considering ways of engaging with/in/for the forest. The walks comprised of 3 staff (myself included) and 8 preschool children exploring the walking trails in a forest near our Centre. Walks were one hour-long, weather permitting, and would take place during regular outdoor play.

- Rules and guidelines for being in the forest were established by the preschool group and staff through group discussion during a circle time session.

As a group, we decided protocol should include:

- ✓ Before the walks I would check the trail and clear garbage.

- ✓ The group would prepare for each walk by putting on proper attire, writing a list of the children going on the walk (so other staff and parents were aware of where we were), and bringing required safety and activity materials
- ✓ Line up and go over planned/proposed activities in the forest

Figure 13: Site 1 preschoolers practice walking while holding a rope. Image taken by Virginia

- ✓ Remind ourselves of safety and responsibility rules—including holding a walking rope when asked (Figure 13). This required teamwork as we had to keep pace for everyone while walking in a straight line, being mindful of others, and how to respond as a group to verbal and non-verbal cues from others (human and non-human).

- The structure of the walks was open-ended, with child-led inquiry taking place based on what we saw and decided to do before and during each walk. We brought along art materials, books, magnifying glasses, a camera, and a walking rope.
- After each walk we would return to the Centre and hold a reflection session/debrief with children on that day's experiences. Notes were taken. Staff and I debriefed after this session and a journal was also developed to share ideas, reflections, and observations with all staff. Field notes were taken consistently. A poster was developed and added to after a couple of walks to share the experience with parents and connect across other learning activities

related to the project (Figure 15). This was presented on a wall near the front door. And children could further contribute to it by adding artwork.

Figure 14: Site 1, Roubina writing observations on group forest walks

Figure 15: Site 1, forest walks poster and documentation of project activities

3.2.2.7 Yoga/Movement

Figure 16: Site 1, an outdoor yoga session with Marcia

The preschool group had a weekly yoga class led by Marcia LeBlanc, a children's yoga teacher who had experience engaging with young people in teaching/learning through storytelling and movement. She was interested in the project and collaborated with staff to bring her classes outside and deepen our understandings of learning in/with/for our environment (Figure 16).

3.2.2.8 Garden

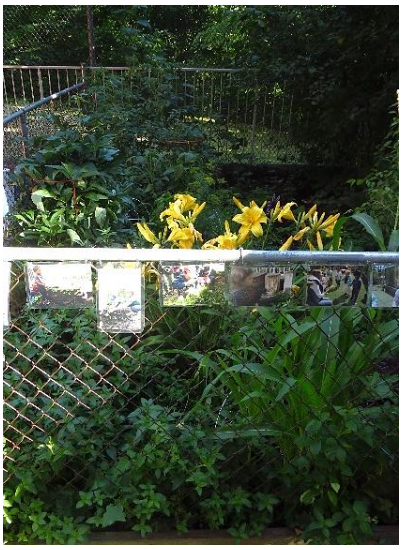


Figure 17: Site 1 garden

The Centre staff and children care for a garden in the outdoor space of the Centre and saw the space as an opportunity to learn more about local species and create/maintain multispecies shared

habitats (Figure 17). Gardening activities took place as needed (often daily), from including children in watering, planting, and collecting plants for different purposes. The garden was considered for sensory experiential learning as well as environmental learning and positive environmental action opportunities. For the project, staff and preschooler participants consulted on what they could include/incorporate into the garden and chose to add a focus on supporting pollinators (bees, butterflies, and others).

3.2.3 Site 2

At site 2, in Costa Rica, La Casita Azul and the Las Nubes EcoCampus offered to be learning sites, having already engaged in local community EE work and worked with York University researchers. The on-site work took place between August 25—September 8, 2018 and participants included: 8 young children (age 1-8), 9 youth (age 9-18), 1-2 parents/guardians present for each child, and 5 facilitator participants. Orlando Vargas, Diandra Arias, and Grettel Fonseca have been working on bringing local school children to Las Nubes, and collaborated with me to involve younger children into their work for the study. Unlike at site 1, site 2 engagement with participants was not a daily practice. As the area did not have a child care Centre and young children were predominantly cared for by parents/family during the day. Therefore, I decided to also include some home visits with interested participants. This offered more learning/knowledge building with parents and young children and we shared/explored ECEE pedagogical methods in a different environment.

3.2.4 Site 2 ECEE Learning Activities

3.2.4.1 Group forest walks at Las Nubes and related arts activities at La Casita Azul

Figure 18: Site 2, facilitator participant Orlando leading a group forest walk

The same protocols that were used in site 1 forest walks (like participation requirements, planning, safety considerations, and related arts-based activities)

were employed at site 2, with modifications made through consultation with 'facilitator' participants. These participants, like staff at site 1, took on more leadership roles, which included sharing the project/finding interested participants, planning and facilitating related activities, and reflecting on ECEE pedagogy and knowledge-sharing.

Alongside facilitator participants, we decided that group forest walk participants at site 2 would:

- Gather at La Casita Azul, learn more details about the project, go over safety and responsibility rules for the forest walk, share learning interests, and ask participants about their past experiences related to EE and ECE.

Figure 20:Site 2, participants take transportation to the EcoCampus.

- Take transportation to the Las Nubes EcoCampus (Figure 20): Orlando used this time to point out and explain the differences in species between La Casita Azul and Las Nubes as we changed altitude. Participants also shared their observations and understandings of what they saw on the ride.

Figure 19: Site 2, participants listening to a presentation

- Tour the EcoCampus and sit for a presentation: Sensory bins, books, and art materials were also made available during this time for children and participants to engage with however they saw fit. Figure 19 shows a small child engaging with a sensory bin as others listen to the presentation. Grettel shared information on the EcoCampus, I gave a presentation on ECEE and the work at site 1, and Orlando shared local EE information, with subjects

including migratory and other local species we might see, seeing interconnections in the forest, and supporting/being supported by multispecies habitat(s).

Figure 21: Site 2, parent and child participants on a forest walk

- Forest walk: Rules and guidelines for forest walks were established in consultation with walk facilitators Orlando, Grettel, and Mark. I shared experiences from Site 1 and they offered local considerations for safety and forest ethics in Costa Rica. The trails were checked before the walks by Orlando. While garbage was not an issue at the site, the possibility of finding poisonous and venomous plants and animals was more of a reality. Learning about participant's experiences with local species and teaching participants how to properly identify species emerged as an inquiry-based experiential learning goal at both sites. The structure of the walks was informed by participant's expressed interests, and open to change based on participant engagement. We would bring along magnifying glasses, notebooks/art materials, and incorporate ECEE activities into the walks based on participant engagement/interests.
- Group Lunch at the EcoCampus: a time for discussion and reflection on the walk experience.

Figure 22: Site 2 participants taking part in arts-based reflections at Casita Azul

- Return to Casita Azul for arts-based work and reflections: A number of art materials were provided and an activity was suggested. Participants could express themselves however they saw fit and work individually or in groups. A Sensory bin, magnifying glasses, masks made at site 1, and books were also accessible during this time.

3.2.4.2 Home Visit

Figure 23: Site 2 home visit participants Kayla (12) and Alanna (2.6) making art

- Interested participants with young children who could not join in the forest walks engaged in the project through a one-hour home visit with me and facilitator participant Mark. The

project was described and materials/resources used throughout the project were provided for participants to engage with in open-ended ways. This included books, photography/project documentation, a sensory bin, magnifying glasses, foraged materials, and art materials. Participants were asked about their experiences in EE and ECE while exploring the provided materials. Some children chose to express their environmental understandings through artwork during this conversation with children and parents. Observation and documentation took place in the moment and some artwork was submitted by children.

3.3 Phase 3: Output

This study was developed to share my learning and reflections from working with participants at Sites 1 and 2 on the project, and contribute an 'academic' base for Phase 3, the final output of the project, which aims to share results and analysis findings more broadly through a document format which is more widely accessible. At the start of the project, participants initially wanted to contribute to a children's book on migrating species (made with children). The shift towards a participant focus on ECEE inquiry-based learning and capacity-building from/with forest walks suggests that this planned output should be adapted. As Connelly and Clandinin (1990), describing writing Narrative Inquiry explain,

> There may be a moment when one says 'I have completed my data collection and will now write the narrative,' but even then narrative methodologies often require further discussion with participants, such that data is collected until the final document is completed (p. 7).

As such, this study aims to serve as a research reflection on the project and upon completion of this study, participants interested in engaging further will be asked to reflect on and respond to this document as we work towards to a final, more 'accessible' output sharing our ECEE learning. The decision to write this study before completing Phase 3 was due, in part, to feedback from some

educator participants who felt that the understandings within the data collected—in children's artwork and participant's observed and documented experiences—might be better useful incorporated within a Children's Group Forest Walks Best Practices Manual. As such, work on this phase of the project extends past this study, and again, will be shaped by interested participants through their consultation and engagement.

One proposed idea, by ECE educator participant Roubina, includes a version of the final output which preschoolers can use, alongside a manual geared at learners interested in facilitating group forest walks with young children. As we work towards publication of the final output, participants from the study at both sites will be contacted and asked to provide their input to ensure that individual and community voices and understandings are being shared and responsibly represented.

Table 1: Suggested major categories for future project output based on data and analysis

Reflections on ECEE forest experiences—from children, parents, educators

Activity and Material ideas to incorporate within a children's forest walks manual:

1. Environmental education lens (examples from project)

- Low Impact Activities: group trail walks, tree bark tracing, "painting" on rocks with water in the sun, repurposing "waste" materials for arts-based learning and reflections, small world exploration, and adapting Semilla activities to include younger age groups
- Positive Impact Activities: litter cleanup, pollinator garden, citizen science, birds in the city (avoiding glass collisions), place-based learning

2. Early childhood education-specific/play and inquiry lens

- Sensory Bins
- Observation and Documentation
- Planning through child-led inquiry
- Masks/dramatic play
- Magnifying Glasses
- Yoga and mindfulness in/outdoors

4 Results and Analysis

This section shares my narrative reflections on the project's processes and data collection. Following the theoretical framework and methodology, my results and analysis are blended and shared through learning stories. I begin by outlining and describing major themes and then move towards Site and Activity-specific learning.

Facilitator/educator participants at site 1 considered going out into the forest as a 'first step' to collectively begin working on this project with young children. They did not expect the forest walks to take over as a major participant-led inquiry focus, as preschooler participants had not expressed a wish to visit the nearby forest before this project began. At site 2, facilitator/educator participants were already responding to community interest in group forest walks, and were interested in exploring ways to involve more children (from the before-school-years) in their community EE work. Participants at both sites were unsuccessful at finding/identifying shared migratory species during forest walks, however, wanting to learn about and look for such species prompted learners to engage in exploring different ways to learn in/with/for local forests and diverse species. Educators at both sites acknowledged that, despite the barriers to holding group forest walks with children and ECEE in general, participating in such community work is vital, as it can facilitate the sharing of resources, experiences, and learning different ways of understanding the world—especially through incorporating observation, documentation, and arts-based methods. This emerging shared vision helped to focus participant actions while navigating institutional barriers to the project. Despite difficulties, educators felt that it was important to support environmental experiential learning for young children and their communities and each individual worked to increase their capacities for facilitating such work. Using critical reflection, forest walk facilitators explored and made adjustments to planned activities, looking for ways to deepen

knowledge and build participant's capacities based on the group's varied experiences and interests. Educators navigated ethical research considerations, especially at times when certain observations and/or documentation had to be left out of analysis to protect participant's privacy. At site 1, taking part in forest walks as a learning activity supported educators by focusing their lesson planning on EE as an emerging inquiry-based theme. Parents/guardians, ECE, and EE Educators wanted to learn from each other's (pedagogical) experiences to inform their own teaching and learning with children, and meaning-making took collaboration, time, and care.

4.1 On Navigating Systemic Barriers in/Through Practice

Educators interested in exploring EE practices with students which go further than and/or against curriculum expectations must navigate the local institutional, political, and cultural barriers which shape practice. Sniderman (2018), encountered systemic barriers while working with students in a small alternative high school in Toronto to build and energy program—seeking to experientially engage with students, faculty, and administration through 'progressive pedagogies' related to real life problem solving—finding,

> …the right combination of pedagogy, systems thinking, and real-world practical inquiry into innovations for a sustainable future can teach students to problem-solve better than the current generation running the school system. Also, systemic barriers to successfully applying this work in schools mirror real-world problems of actualizing large-scale reforms to mitigate the effects of climate change – there is great need and pressure to make change, but the system is entrenched in older models and resistant to easily implementing innovations. (p. 7)

While I had engaged with theory on the barriers to such educational projects, including action research projects with young children (section 2.1), I had never explored them through practice. Systemic intergovernmental and administrative barriers, while encountered through the project by educator/facilitator participants, are not included in the scope of this study, however, in sharing pedagogical narratives from the project, the study hopes to contribute its own experiences of

reconstructing identities and ideas of 'community' through and within ECE, EE, and ECEE practices (von Benzon, 2018; Boileau, 2013; Riessman, 2008). Working with participants, we learned that, as Jiménez (2018) found, it is important to have a shared community vision which incorporates individual understandings and needs. By framing the project as one which would would grow out of participant interests and engagement, those intersted in participating in the project already percieved pursuing community EE learning through an early childhood environmental education project as important. The performative narratives which many participants shared—describing theirr interest in the project and reflections—positioned them as wanting to learn new ways of engage in/with nature through sharing and learning in/with diverse understandings. Moevover, adults described the importance of engaging in such 'difficult' work (facing systemic barriers to engaging in such transdisciplinary educational learning) because they thought that it was important to support community by learning how to better include and learn from young children in EE and EJ work. The individuals and communities who participated in the narrative pedagogical inquiry wanted to learn more about/through environmental engagement and to build their learning capacity through group experiences and reflection. The vision was one which not only applied to and followed the four foundations of *HDLH?*(2014), but extended them to/with EE—wherin we explored our relationships to our local natural worlds through co-constructed stories of Belonging, Well-Being, Engagement, and Expression in/with/for the natural world. Through this shared interpretation of what it means to engage in ECEE, I saw participants not only engaging together in navigating the systemic barriers within ECEE, but, also navigating broader systemic barriers to positive community environmental action through the space created by experimenting with/through ECEE.

4.2 On Collaborating with participants of different ages and experiences

In framing the study as a collaborative pedagogical inquiry into ECEE, I explored research and pedagogy methodologies which narratively positioned participants of all ages as experts of their own experiences (Riessman, 2008). Through co-constructed meaning-making and playful environmental engagement, participants observed, documented, and interrogated shared and emerging ECEE interests and performative relational understandings (ibid.). Drawing from examples of community-based participatory research (CBPR) offered a paradigm which "attempts to make research a more inclusive and democratic process" through academic/community partnerships aimed at addressing community-relevant research priorities (Flicker, Travers, Guta, McDonald, & Meagher, 2007, p. 478). While most participants at site 2 had had experiences with academic/community partnerships in the past, participants at site 1 had not discussed participation in any previous community research-related projects. While I tried to make the process and planning as inclusive as possible, individual participants showed different preferences and engagement in taking part in the different phases and aspects of the emerging project. As a result, I must note that certain project decision-making, while made in consultation, lacked a truly democratic process, in part, due to participant lack of interest, barriers such as resource and time constraints, as well as lack of experience—the project was a practical introduction to ECEE possibilities and realities for all participants. While working with children, different methods within and connected to YPAR were considered and explored, so as to include a focus on listening to/for children's different ways of understanding the world, facilitating collaborative meaning-making, and changing and/or relinquishing some of the adult researcher's (including my own) predetermined research agenda and methods (Boileau, 2013, p. 147). As such, I needed to assess

participant's literacies in ECE and EE, as well as interest in capacity-building within the project. During consultation and activities, some participants at both sites (educators, parents, and children alike) would look to me, the researcher/educator, as if for approval that what they (or their children) were doing or saying was 'right'. In those situations, I reiterated that I was not looking for any specific 'answer' or way to do things—that we were figuring it out together. In creating this space, many participants seemed to become more engaged and showed pride for their contributions to the project. Likewise, this created an atmosphere where participants supported and encouraged others within and between sites. For example, at both sites, arts-based reflections on forest walks were a communal experience, with participants of all ages often immersed in discussions on what they were creating, sharing ideas and materials with others, contributing to field notes, and meaning-making. Following the process described in Figure 5, sometimes we were not able to follow-through on engaging with each emerging learning interest, sometimes this was due to systemic barriers, other time, participants lost interest in engaging with the ECEE subject matter. However, in these instances, interested participants still contributed to co-constructed reflections and would try to adapt processes and activities based on this learning—with individuals sometimes taking up their own activities related to interests emerging within the project and later sharing their learning with the rest of the group. For example, at Site 1, while the toddler group was not involved in the project's data collection or analysis, educators from the toddler classroom joined in on consultation and preschooler activities in the project, and shared how this added to their own classroom activities. Figure 24 shows a poster made by Site 1's toddler room ECE Olga, using Velcro to hold items which could be added and removed as the children wished. In creating this activity, Olga considered children in her class who had a great interest in adding and moving felt pieces around the room—creating their own scenes. Consulting further to consider how we could share

preschooler's emerging knowledge with the toddler group, we asked educators and preschoolers to contribute to felt creations of local animals which could be included with the toddler's activity poster. Figure 25 shows some of the resulting artwork—species were chosen through group conversation and included a cardinal, blue jay, garter snake, dragonfly, worms, monarch butterfly, squirrel, and warbler.

Figure 24: Site 1, toddler room sensory activity poster made by ECE Olga.

Figure 25: Site 1 felt locally-observed species created for toddler group

Through our collaboration(s), researcher and participant positions were muddied—as activities, data collection, and analysis were often co-creations made over sustained participant engagement. Connecting this back to pedagogical theories within YPAR, I hoped that the project's results and output might contribute to other EE community explorations and conversations on how we might practice/facilitate more playful and sustained critical engagement through curiosity and capacity-building.

4.3 On Navigating Ethics in Practice

Through project planning and activity involvement, participants shared and explored ethical issues related to: responsibility, care, safety, and risk. These major themes emerged throughout group storytelling and co-constructed analysis informed by experiential understandings. While the project emphasized listening to/for children's voices and representing the perspectives of all participants through exploring and learning from practices within a YPAR approach, we were also mindful that adult interpretations and understandings of the data largely shaped data collection and analysis (Green, 2015). These ethics themes first emerged when writing and signing consent forms, as I considered the situated community ethics of working at each site. At site 1, families ranged from multiple generation to newcomer Canadians. The Centre's multicultural community spoke a number of languages, and educators and parents often learned and shared words in different languages to communicate with and support each other, including English, Russian, Spanish, and Tagalog. At site 2, families spoke Spanish and sometimes English. Consent forms were written in English and Spanish, and a Russian translation was later made addressing participant needs at site 1. While a longer, more in-depth consent form was created, participants preferred the more accessible language used in the minor assent/verbal consent script. At site 1, participants were able to take forms home and discuss them with their children and families before signing, however, due to time limitations at site 2, participants signed forms before taking transportation to the Las Nubes EcoCampus. Due to my own language barrier, a university colleague, Mark, was hired and his translation and consultation helped to facilitate much of the work at site 2. As a researcher, I felt a great responsibility to facilitate a project which benefitted participants and their communities and minimized risks, and I wanted to make sure that participants understood what they were consenting to, despite the difficulty of describing an emerging and inquiry-based project. Some

participants, especially those who knew me well, were ready to sign forms without reading them over, and I made sure to take more time with those participants and asked them to be critical of what the forms entailed. Signing consent forms required many individual and group conversation, and helped me learn what each community was comfortable sharing and how.

While I, as a researcher, suggested an initial focus, the 'action' aspects of this research were participant-led and developed through constant consultation and collaboration with interested participants between sites. The process of deciding on how knowledge would be shared between both sites considered both individual and community input. While participants showed interest in learning between sites, they preferred indirect communication, with ideas being shared through me. Being open to more liquid methodologies, I was intrigued by how participant connections and collaboration through digital spaces might bring new and different understandings to the project (Savin-Baden, 2017). I wanted to connect participants at both sites with each other more directly, and so suggested we consider online methods of communication. Parents and guardians in the Site 1 participant community chose not to take part in an online group, as some individuals did not want to have images of their children posted in an online group (however were okay with such documentation shared and used in the project's data collection, analysis, and output). The Site 2 community was more open to online sharing and communication, and so I created a Las Nubes Forest Walks Facebook group called "Caminatas en Las Nubes". Site 2 participants were also accustomed to communicating with each other through groups on mobile platforms like WhatApp, and preferred this communication over e-mail (which was preferred by adult participants at site 1). While the group chose not to engage in any online groups, some participants at Site 1 had explored the page for site 2 and would "like" images and/or reference things that they had seen on during in-person group discussions at site 1. While a consideration of including opportunities for further

ECEE community collaboration through media and technology engagement is something which I, as a researcher, would like to explore further, this topic was not pursued in this study because it was not an expressed participant interest.

A both sites, adults preferred to engage in informal consultation over planned focus groups and surveys while children shared/expressed themselves most through art work and during the forest walks. One reason for this, at site 1, was the structure of the day in the child care Centre. Within the set daily schedule: teachers were often multitasking between child care, education, and Centre duties; parents were running in and out during drop-off and pick-up; and children were moving between different stations/activities. Through consultation over the pedagogical observations and documentation which staff were making during their daily practice, educators showed me how their planning and programming connected to ELECT (2007) as we worked together to incorporate more ECEE and experimentation into the Centre's work (Table 3).

While we tried to plan educator and children's work on the project to occur at a set-time and day, we often had to adapt—as is the nature of working with children. Likewise, the researcher's close proximity to the participants at site 1 led to participants wanting to engage in the project on days and times that the researcher and others had not 'set-aside' for the project. At site 2, there was more of a set-time around work on the project, as participants gathered solely to take part in and contribute to the work, however, participants also had busy schedules and coordinating those schedules meant for changes and adaptation of protocols--such as the decision for home visits to accommodate families interested in the project who could not take part in group forest walks at Las Nubes. As Connelly & Clandinin (1990) explain, "At the completion of a narrative study, it is often not clear when the writing of the study began" (p. 7). Within this study, I struggle with what and how to share the data from an ethical sense, as I want to share as much of the project's learning

as possible, protect participant's individual and collective privacy, and tell the research story 'in a fair way'.

4.4 On Safety and Risk

Discussing EE in ECE, Duhn notes,

> Anxious parents and their over-protected children are immersed in what has been termed a 'culture of fear' … Special places for children are largely inside spaces, where the adult gaze monitors potential dangers to provide a 'risk-free' environment for the young child. Potential risks need to be managed not only in the physical but also in the emotional, social, cultural, including 'virtual', and mental realm (2012, p. 20)

As Duhn argues, this fear stems not from children themselves but as a response to adult ideas on safety and risk within/from the environment. Strife (2012), argues that dominant Western media and EE narratives emphasizing "distant ecological problems such as rainforest destruction" have led to too much of a focus on "distant and abstract issues [which] may cause children"—and I extend this to adults as well—"to feel overwhelmed by environmental problems, perpetuating ecophobic feelings" (Strife, 2012, p. 38). Working alongside participants in this study, I explored ideas of risk and risk-taking within ECEE at individual, community, and global scales. The *HDLH?* Document shares that educators should, "facilitat[e] children's efforts to take reasonable risks, test their limits, and gain increasing competence and a sense of mastery through active play and social interactions" (p. 33). Through engaging in the study, I was interested in exploring participant's perceptions around what makes a reasonable risk in learning. Engaging in/with different environments and at different scales of participant understanding—I realized that 'reasonable risk' for educators depended largely on perceptions of participant's capacities (4.4.1). For example, at site 1, in planning group forest walks with staff, parents, and children, we

considered using and employed a walking rope. Discussing allowing children to walk without the rope in the forest, some felt it might be too risky, as we did not know 'what might happen'. As the walks went on and children exhibited that they were responsible enough to not always need to hold the rope (and as children themselves became more comfortable walking together without the rope), the perceived risks around not holding on to the rope while in the forest were diminished. As a result, the group decided together on when using the walking rope was appropriate (such as when passing trail areas with dog-walkers or groups of people or giving children to explore a forest area on their own.

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4.4.1 Participant perceptions of children

Under "Nurturing Healthy Development and Well-Being", *HDLH?* (2014) asks educators to reflect on, "[h]ow can the environment be arranged to encourage children to engage in activities that involve an element of manageable risk (appropriate for children's varied capabilities)?" (p. 34). I believe that a question we must first ask, considering risk, is: how should adults perceive children engaged in 'risky' explorations of their natural environment(s)? In conducting research with young children, Boileau (2013) lists adult perceptions of children as a major barrier. While experimenting with different theories and diverse practices in ECEE—especially with ideas on/from Forest Schools, a growing global movement with roots in Scandinavia aimed at reconnecting children with nature—adult participants in the study experienced this barrier, and had to learn to understand and navigate through each other's understandings for the project to progress (Leather, 2018). At site 1, while the younger age groups took part in some of the activities in the study, staff and parents decided to focus the project on the preschool group. A part of this decision was a worry that the other groups were 'too young' to go on forest walks and/or engage

in creating a book on species migrations based on their reflections[4]. Moreover, adult participants felt that preschool children were more capable of understanding and giving consent to be in the project and share data. The decision to include only preschool children in forest walks at site 1 was likewise made with safety in mind, as adult participants agreed that in the forest, the ratio of teachers to children should be increased. While the ratio in the Centre is one teacher for 8 preschool students, in the forest, staff felt more comfortable with 3 educators and 8 preschoolers. At site 2, there were similarly 3 forest walk leaders, however parents/guardians also accompanied children on the forest walks. As a result, there was no limit to age during group forest walks at site 2, and the youngest forest walk participant was 1.8 years old. Through reflection on experiences within this study, facilitator participants at both sites suggested that ECEE programs where family/guardians join in group forest walks with children may more offer more accessibility for the inclusion of younger children and/through community intergenerational knowledge exchange. Parents at site 1 were invited to take part in the project's forest walks, however, those interested could not do so due to their own schedule constraints (most parents worked while their children were in the Centre). Cultural, structural, and environmental participant perceptions shaped the differences in protocol and experiences of group forest walks at both sites.

To address ECEE barriers related to adult perceptions of children, initially and throughout the study, I asked participants (and myself) to critically consider how we (individually and societally) perceived children. Throughout various group and individual conversations, I shared some ideas on how cultural constructions of childhood have a direct influence on pedagogy, as they shape

[4] Despite these adult perceptions, as the project progressed, some children in the toddler group showed an interest in the preschool group's walks, and learned from project participants in informal ways (such as children sharing forest stories and imaginative play with each other).

understandings of what is appropriate to teach, how, and to who (Malaguzzi, 1994). Working with educators in EE and ECE helped me to see how perceptions of children and children's education also inform and are informed by ideas of professionalization (Khattar & Callaghan, 2015). As the study aimed to exhibit and contribute to participant's individual and group capacity-building related to ECEE in an inquiry-based way, consultation with educators and parents began by reflecting on the narrative in *HDLH?* (2014) of children as "competent, capable of complex thinking, curious, and rich in potential…a valuable contributor to [their] surroundings, and deserv[ing] the opportunity to succeed" (Ontario Ministry of Education, 2014, p. 6). As a prompt, I often asked older participants to reflect on their childhood experiences in nature and the differences between their own children and/or student's environmental education. One example of this early on in the study was during an informal conversation with one Costa Rican parent participant, where I asked, "at what age should we introduce children to environmental education?" His reply was confident and quick, "as soon as they start school". I asked, "why not sooner?". He was intrigued, thought a moment, and said that he did not know how to begin teaching his toddler about nature. I asked him about his own early experiences in nature and he shared how he learned a lot about worms through exploring puddles as a child. I asked if his children were allowed the same types of 'messy' explorations and he paused, surprised, and said he had not considered it. Engaging further, we reflected on why adults might limit or control children's environmental experiential learning and what knowledge and understandings might be lost (and/or supported) through this.

During data collection and narrative analysis, I asked participants to pay attention to and embrace children's stories of their lived realities (in as far as children wanted to share). Observation and documentation of children's activities at both sites played a large role in not only critically

considering how child participants were viewed (and viewed themselves), it had a part in reshaping perceptions for some participants—by illuminating places/moments of discomfort in both children and adults. Likewise, activity engagement, as well as unengaged participant responses were discussed through group storytelling, as we explored our relationships with and perceptions of children and/in the environment. While Site 1 already based its educational programing on children's interests, going on forest walks offered a group experience/activity where children exhibited new interests, giving educators new considerations for planning/facilitation in all learning spaces (drama, art, science, outdoor, etc.). One educator expressed that the forest walks themselves supported environmental education as an emerging theme in program planning, because it became such an interest for the children. While some considered the realities of going on forest walks as "risky" and/or "more work", all participants in the study discussed the importance of, and learning potentials possible through, group forest walks with children.

4.4.2 Navigating "Risk" with Children—Garbage/Waste

At Site 1, preschool children's focus on garbage in the forest emerged without teachers planning for it. 'Dealing' with garbage in the forest highlighted difficult environmental knowledge which educators at Site 1 initially wanted to keep preschoolers safe from. As we realized, children were already very aware of issues of waste, and responded actively upon realizing that it existed in our nearby forest. A possible reason for the children's focus could have been learning from home and/or at the Centre, including through modeled positive environmental behavior from adults. Prior to the study, preschoolers were already trained in separating waste in the compost, recycling, and garbage bins--most knew to clean up after themselves and to help those around them. Some children expressed concern when seeing waste in the forest. As I took a bag and gloves to clean the trail before each walk, children saw this and would ask questions before and after each trail inspection. While I initially focused on clearing just the trail, the children's concern about garbage off-trail encouraged staff to bring a bag and gloves along to pick up whatever they saw and dispose of the waste in the forest properly. It was interesting to see children's concern, and the fact that they did not expect to see plastic litter in a forest (while I and other educators were

Figure 27: Site 2 participants creating paintbrushes using string and foraged materials

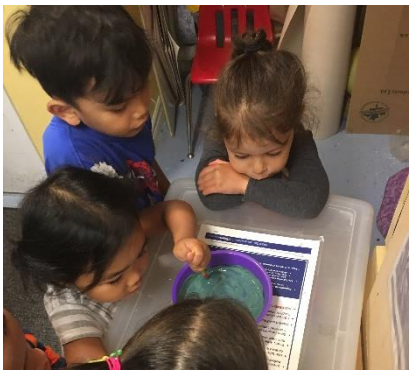

Figure 28: Site 1 participants mixing leftover paint

Figure 26: Site 1 participants painting "a forest with no garbage"

used to seeing such things in City greenspace). As the group thought of ways to create less plastic litter, they developed a project where they created paintbrushes from natural materials found on the forest floor (Figure 27). They then mixed leftover paint to use for the project, and used those materials to paint what they wanted the forest to look like—garbage-free (Figure 28, Figure 26). The garbage in our urban forest was something that I wanted to protect them from, yet as a group we realized that it was yet another EE learning opportunity.

At site 2, while some participants (children and adults) expressed an interest in garbage clean-up and activities related to recycling and reducing waste, waste in the forest was as less of an emerging participant focus within experiences at the EcoCampus, as we did not see any on the trail. Despite this, participants at Site 2 worked to reduce and properly dispose of waste created through project activities, such as by composting food waste and by reusing materials for artwork. Likewise, when asked where the materials that I brought with me (such as nature magazines for collage work and sensory bin materials) were from, I explained that many of the items were things that I already had and that I had been saving for such work. One fear that parents at Site 2 expressed on a few occasions was a worry that their young children might 'ruin' materials like books or 'waste' things like paint or paper. I reassured these participants that the materials provided could be engaged with in whatever ways children wanted, there was no 'right' or 'wrong', and together, we observed

Figure 29: Site 2 home visit, Kendra (1.5) gently dips a paintbrush into paint

children exploring these materials—in sometimes messy but never ‘wasteful’ ways (Figure 29). I find it interesting to reflect on waste, as the eco-conscious side of me considers it important to reduce it as much as possible, while the pedagogical side believes that we must allow young children to use and explore materials as they engage in play and learning. I found it interesting to engage with individuals as we established and explored practices of ‘dealing’ with waste. It was especially interesting for me to engage with participants at Site 2 through project planning and activities, as such questions raised during collaborations contributed to building a two-way research relationship while navigating ideas of risk. While waste and ideas of waste were initially perceived seen as a risk, framing it as a reflective learning opportunity in which adults observed children’s agency and responses created a space for all participants to be more mindful of materials and how we use and dispose of them.

4.4.3 Changing Perceptions while Learning in Nature—Snake Stories

Educators were interested in exploring both formal and informal pedagogical practices while learning about/in/with local greenspace. Those with less practice quickly learned about the dynamic and uncertain realities of working with children in open greenspace environments. Site 1 quickly learned that adaptability was key, as well as an openness to learn from experience in the environment itself. Snakes were one species of interest to participants, and over time Site 1 had many encounters with non-venomous snakes. As these encounters grew, children expressed different understandings of snakes.

Figure 30; Site 1, Dekay's brown snake (Storeria dekayi) tail peeking out of the grass

On one early planned forest walk at site 1, while checking the trail, I saw a Dekay's brown snake (Storeria dekayi) in the grass between the child care Centre and forest (Figure 30). While non-venomous, educators and children did not yet feel comfortable walking through that area, knowing that the snake might be somewhere still hidden in the grass. Moreover, many parents expressed fear of snakes, and while I had reassured them that local snakes were harmless, I worried about parent reactions to children telling them that we had come across a snake. Educator Nicole suggested an alternate ECEE activity, building on children's expressed and emerging interest of trees, by tracing the bark of a tree which we could reach while avoiding the grass where I had seen the snake. As the group compared tracings and discussed the tree, we began to feel more

comfortable in the outdoor space. Some children pointed to a large tree stump in the grass, which they wanted to create a tracing of as well. We moved through the grass towards the stump, using heavy footsteps to 'warn' the snake that we were near. Reassured that the snake had moved away

Figure 32: Site 1 ECE Nicole leads a tree bark-tracing activity

Figure 31: Site 1, Helen and preschoolers examining a tree stump

after recognizing our presence, we laid out mats for children to sit on while they explored the tree stump. We looked at and compared the different parts of the trees which we could see and touch, including the rings and bark. We also compared tracings which the group had made between both trees.

On another forest walk day at Site 1, the group encountered its first snake. As we were enjoying the sounds of the Don River, looking at big trees and smelling the flowers, the group stopped as they saw a garter snake (later identified by Andrés Jiménez as likely a Ribbon snake, in the family of garter snakes) slithering along the trail. Some of the group said that they were scared, and I explained that those snakes are not venomous and are usually very scared of people. I reminded the group of what I had learned walking in the Alexander Skutch Biological Corridor, where there are many venomous snakes—that heavy footsteps warn snakes that you are coming. After that, the

group stomped through the trail whispering "We're waking up the snakes!" (See 88 for further discussion).

Figure 33: Site 1, a Ribbon snake crosses the trail

On yet another forest walk day, as we explored the edge of the forest, we stumbled upon a garter snake curled up in the sun. During this snake encounter, the group stood and observed the snake, showing less fear. One child suggested that the snake was not alive because it was not moving, continuing to watch, another child exclaimed that it's tongue was going in and out of its mouth.

Figure 34: Site 1, a garter snake curled up in the sun

The group also began to reflect on and compare the different snakes that they saw during forest walks. Learning about local and distant snakes through stories, books, and their own experiences of encounters, some children began to display a great affinity for snakes, and snakes became a

predominant theme in Site 1 children's artwork. Through these experiences, I learned that carrying out certain EE and ECEE activities require a level of participant comfort, one which can be built over time through new experiences. Engaging with children as co-researchers, facilitator participants (including myself) were able to discuss our feelings and perceptions on risk, reflect on this, look for resources, and support each other's growing capacity-building and interests. Likewise, our weekly practice of going into the forest and sometimes seeing snakes led to some preschool children gaining an experiential interest and expressing wanting to learn more about them.

At Site 2, snake encounters carried much more potential risk, as the area supports many venomous snakes. Instead of garbage, we would have someone check the trail for snakes before each walk. As adult participants shared their experiences of encounters with snakes, and after reflection and consultation, facilitator participants thought it would be important to have the last pre-forest walk education talk focus on reptiles/snakes. This included a discussion on identifying snakes and providing facts which countered some local misinformation (such as our experience of many participants referring to all snakes as the venomous Terciopelo/Fer-de-lance). During this

Figure 35: Site 2, Orlando discusses snake identification with the group

planning, participant facilitator Mark reflected that for us as outsiders to the area, it is easy to romanticize the idea that snakes must be protected at all costs, and that we had to acknowledging the complicated relationships and understandings which participants may have built through encounters with local snakes.

Reflecting on the diverse perceptions and stories of risk related to experiences of garbage/waste and snakes by participants at both sites, I am drawn to Tsing (2015), who suggests that "[w]e are contaminated by our encounters; they change who we are as we make way for others" (p. 27). Experiencing such issues with participants at both sites, I found 'reframing' risk as 'learning opportunity' to be an effective pedagogical method towards sharing and problematizing adult perceptions. My goal was not to look at any one form of understanding or response to 'reasonable risk' as the right pedagogical way, but rather, to explore and reflect on pluralistic and compllicated understandings of the natural world. I learned individual understandings from participants which were formed by direct experience, through storytelling (incluiding 'facts') and in combination which informed group planning and activities in the study.

4.5 Stand-out ECEE Activities:

In planning ECEE and EL experiences, facilitator participants at both sites discussed activities which we could do that would have low environmental impacts and/or positive environmental impacts. While we aimed to carry out similar activities between both sites, this was not always possible. For example, planting plants and trees was considered a top positive environmental impact activity, however, the activity was not carried out at site 2 due to time constraints. Table 2: Stand-out ECEE activities explored in the study, summarizes which planned activities were carried out at each site and includes activities directly adapted from Semilla (2017a). At Site 1, introducing participants to the Semilla (2017a) document shaped and deepened understandings of ECEE in the childcare Centre, as we (children, educators, and parents) began to discuss, recognize what we were already doing, and explore new ECEE activities. In such reflections, we acknowledged that we were sharing our "personal practical knowing", and connected this to the community knowledge created and shared in the Semilla (2017a) document to explore the similarities and differences within our own site's experiences (Connelly & Clandinin, 1990, p. 5). Community members who I had interacted with in the ASBC are proud of where they live, with many seeing themselves as stewards supporting the great biodiversity in the area. This inspired some participants at site 1 to want to begin learning about their own local species and/or positive environmental actions. I was surprised to see how many participants at site 1 already exhibited eco-conscious actions—and we worked together to document and make these positive learning actions more explicit within the Centre's community. Working with interested participants at Site 2, we collaborated on the project as a response to community interest for more learning opportunities at the EcoCampus and with York university "to learn about the local environment and ongoing York University projects, particularly for children and youth in the community"

(Cummins & Caravaggio, 2017b, p. 4). Community members shared their interest in EE and 'personal practical knowing' from living in a Biological Corridor. They were also interested in ECEE experiences from Site 1, including what species participants had seen and learned about, as well as how educators were teaching young children about EE. At Site 2, working with young children who were predominantly cared for by parents/family during the day instead of by ECEC educators in a child care setting, I was interested to observe their engagement with the pedagogical materials and activities which I had only experienced in a daycare setting. Likewise, experiences at Site 2 contributed to changing and/or adapting some of the project's practices upon returning to Site 1, as place-based understandings suggested new questions and participant interests to pursue.

Table 2: Stand-out ECEE activities explored in the study

Activities explored in the study		Adapted from Semilla (Cummins & Caravaggio, 2017a)	Site 1	Site 2
Low Environmental Impact	Group Forest Walks		✓	✓
	Small World Exploration	✓	✓	✓
	Nature Map	✓	✓	✓
	Sensory Bins		✓	✓
	Parachute Play		✓	
	Masks/Dramatic Play		✓	✓
	Magnifying Glass Exploration		✓	✓
	River Exploration	✓	✓	✓
	Hug a Tree	✓	✓	✓
	Reusing/repurposing materials		✓	✓
	Habitat Build	✓	✓	✓
	Tree bark tracing		✓	
	"Painting" on rocks with water in the sun			✓
Positive Environmental Impact	Planting Plants and Trees	✓	✓	
	Herb Garden	✓	✓	
	Talking Trees	✓	✓	✓

	Community Clean up	✓	✓	
	Creating a pollinator-friendly garden		✓	
	Birds in the city (avoiding glass collisions)		✓	
	Sharing/learning citizen science methods		✓	✓
	Outdoor mindfulness/observation practices		✓	✓

4.5.1 ECEE Activity Reflections

4.5.1.1 Circle Time

Figure 36: Site 1 ECE Roubina and preschoolers discuss caring for plants during Circle Time

Figure 37: Site 1 preschooler Michelle draws a monarch butterfly while using a library book

At Site 1, through consultation with staff and reflection on children's interests, the goal was to infuse an EE focus into this daily activity by offering more science-informed understandings and knowledge alongside discussing children's experiences/understandings/knowledge. I offered resources which participants could engage with, such as more nature-based books and animal songs which were included in the activities during Circle Time. As in all planning at site 1, ELECT (2007) and *HDLH?* (2014) were used by staff. Table 3 offers an example of connections which I made during observation and documentation during a Circle Time session, in consultation with staff. These observations are made with co-constructed 'personal practical knowing' observations of children by Site 1 educators.

Table 3: Example of observed ELECT domains and skill expressed by preschool children during Circle Time sessions—informed by children's emerging interests from forest walk experiences

1. **Social**: As the group took turns sharing favorite moments during a recent forest walk, preschoolers were (1.5) Interacting positively and respectfully, and (1.6) Co-operating through turn-taking.
2. **Emotional**: Children expressed (2.1) Self-concept by sharing what they were capable of doing in the forest (like walking in a straight line) and what they still wanted to achieve (like experiencing leading future forest walks), This group conversation likewise showed children (2.5) Regulating attention, emotions, and behavior and (2.6) Positive attitudes towards learning, as they were engaged in sharing and learning with each other.
3. **Communication**, Language, and Literacy: While sharing and learning about species of interest, preschoolers grew their skills across this domain, including (3.1) Using verbal and non-verbal communication, (3.2) Using English and the child's home language, growing their (3.3) vocabulary by learning to name species, and (3.4) Conversing with peers and adults
4. **Cognition**: During Circle Time reflections on species of interest, children were (4.4) Questioning, (4.5) Observing, (4.7) Reflecting and reaching conclusions, as well as 4.18 Identifying patterns between the walk which they were discussing and past visits to the forest;
5. **Physical**: Children shared their (5.4) Auditory Skills and Music while singing songs about species of interest and learning different animal calls which we could use to identify species on future walks.

During Circle Time, children and staff at Site 1 sometimes discussed depictions of species through books and songs alongside their perceived realities/experiences of those species. The group exhibited interest in learning which they could take into the forest walks and other ECEE activities to better engage with local species, such as learning bird calls, species names, and caring for the 'natural world'(Figure 36). Books from the local library were also chosen, based on children's emerging species of interest. Figure 37 shows how books introduced during Circle Time were used by preschoolers in self-led activities. At Site 2, I incorporated some Circle Time ideas into both

forest walk days and home visits, asking participants about their EE interests and sharing resources and information based on this. This was especially helpful, as I did not know many of the participants from the start of the project, to introduce ourselves, our interests, and what we 'know'. Casita Azul was a great resource/site for this, as participants could look through and refer to their collection of books on the natural world. Incorporating local library books into this ECEE was pedagogically interesting, and staff at Site 1 were amazed by how gentle the preschoolers were when handling the books. Despite some of these books being geared towards older learners, preschoolers were excited to engage with and discuss them (Figure 7). Some children who previously might have been rough with the Centre's books began showing more care towards all books, and explained to others, "they're not our books, we're borrowing them". I thought that a part of this response might be due to the 'specialness' of the books—without being told, children recognized that adults were trusting them with something that might be considered a risk (replacing/paying for a ruined book). Seeing the care and responsibility which the children exhibited over library books at both sites encouraged some of the educator/facilitator participants and parents to reflect on and problematize what materials and/or resources we deemed 'inappropriate' for young children. This contributed to planning and activities at site 2 as well, as I consulted with participants at both sites on what EE books they thought I should bring with me

Figure 38: Site 2, a bookshelf in Casita Azul

for child participants to engage with. Through consultation, I decided to include a diverse range of books which shared stories of species, contributed scientific ideas and facts (including engaging children's curiosity through EE capacity-building toward species observation/identification skills), as well as the Semilla (2017a) document.

During Circle Time at site 1, book/story analysis emerged as a participant interest. After reading a book as a group, the story/information, what they learned, what they liked, and did not like was discussed in group. Staff would later reflect on what held the group's attention, what the children said during these talks, and offer ideas for activities to pursue in the Centre. We also observed and discussed which books children preferred to engage with on their own versus in-group. When library books had to be returned, children and staff were asked what new books/subjects should be taken out next. The local library had many interesting children's books, and site 1 favorites included those on migrating birds, bird calls, forests, and snakes.

4.5.1.2 Sensory bin

Figure 39: Site 1, a forest walk-inspired sensory bin

As an opportunity to incorporate sensory bins into the project, Staff and children discussed ideas for sensory bins. Figure 39 shows a sensory bin which was curated by children in the preschooler group for the toddler group. Focusing on sensory learning and forests, preschoolers decided to include colourful feathers, moss, pinecones, magnifying glasses, insect toys, and a container. Some preschoolers were especially interested in the opportunity to 'build' sensory

bins, and would contribute items into the bins for themselves and others. This input included using certain foraged materials from the forest walks, setting up bins as 'small worlds' (ecosystems), and providing materials for children to create different habitats for different species. Participants at site 1 likewise considered ideas for what to include in sensory bins at Site 2. At Site 2, sensory bins were made available during both home visits and on forest walk days at Casita Azul (before leaving for Las Nubes and upon return for arts-based reflection activities) as well as at Las Nubes during the introduction/learning session prior to the walk. Parents with small children were able to focus on the talk while children could engage in EE learning in a more playful and sensory way (Figure 19).

4.5.1.3 Science Table

Figure 40: A site 1 preschooler at the science table exploring local tree branches and learning materials

At Site 1, after adding the Helen's Forest Explorations book to the science table, children and staff began to share and ask for other resources based on their growing EE engagement and interests towards the nearby forest. Materials created for the science table included: local tree identification flash cards, foraged materials from the nearby forest (including those which could be matched with tree identification cards and compared, seen in Figure 40; herbs and other plants grown in our garden; factsheets on fallen trees, dandelions, and frogs; and 'special' (sometimes library) books on topics such as natural history and facts about animals.

Children seemed to be engaging more with the science table as the project progressed and some would show parents recently-added materials during pick-up and drop-off times. Staff printed photos and created a picture book of the group forest walks. Some staff expressed how connecting the Centre's growing forest knowledge and group walk experiences throughout different areas in the room, such as the science table, supported them in more-focused program planning.

Despite the growing connections to EE at the science table, EE was not considered a stand-alone 'science' subject, rather, materials at the table were meant to compliment and facilitate deeper experiential learning across activities throughout the classroom and outdoors. Through their ECE knowledge and some pedagogical experimentation with the preschool group, staff were able to incorporate EE as a child-led theme across learning activities. As mentioned previously, I was happy to see EE and eco-conscious teaching and learning happening in the Centre prior to the project. A major participant capacity-building interest, inspired by Semilla (2017a), was to recognize the positive actions which the Centre was already doing, make them more explicit, and encourage others. For example, one EE learning theme which arose during forest walks and could have been deepened through the science table—inspired by activities in Semilla (2017a)—could be the topic of waste, discussed in section 4.4.2 . While the following activities were not carried out in the project, educators at both sites considered them important and agreed that they should be included in future ECEE program planning. At site 1, waste reduction was a daily consideration, and many preschool children already knew the differences between what went in the recycling, compost, and garbage bins. Children would often monitor each other to not 'waste' items (like paper and food) and made sure that items which were being disposed were placed in the proper bins, especially as some children did not know where items should go. Activities such as "Recycle Relay" and "After the Garbage Bin" could help children understand *why* sorting waste matters

(ibid., pg.40-41). Educators reflected on how these activities might be adapted for the preschool group. Staff considered also connecting these activities to materials at the science table, and reflected on how this could deepen our understandings of waste and collective responsibility to maintain a clean/safe environment for all. As a researcher, it was especially informative to work with early childhood educators in creating science table assemblages, as they illuminated and suggested ways of deepening EE activity learning connections through *ELECT (2007)* and *HDLH*? (2014) understandings which I had not considered. Likewise, in contributing to items and activity planning related to the science table, children were able to express themselves, learn, and connect—which surprised and showed some parents that children could be engaged in STEM from an early age.

4.5.1.4 Arts & Crafts

Figure 42: Site 2 participant art made with foraged materials, paint, and marker. The text on the image reads "inga" likely reffering to a genus of tree, as well as "trees give food to other species"

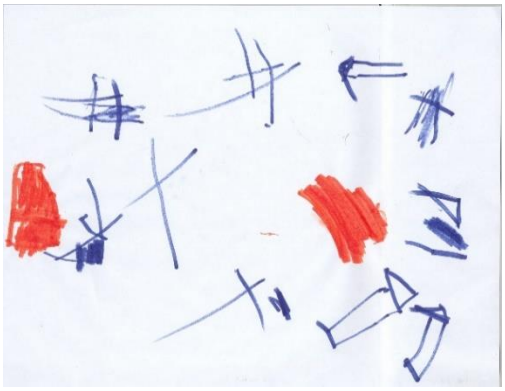

Figure 41: Site 1 preschooler (unnamed) drawing described as "The Forest"

Planned artwork reflection sessions and art activities were done in groups. This occurred after each forest walk at both sites. At Site 1, when a child or staff participant chose to make art related to the project on their own, they would discuss with other participants whether it might be included in the project's planned output. Sometimes a child would create an image that other participants considered related to the project but that the child did not want to submit and/or show others. In

these situations, the creator's wishes were respected and this work itself was not included in analysis. Likewise, some children created works which did not seem to connect to the project, but which they wanted to submit, and so this submitted visual data were analyzed and included in group discussion (examples included abstract or unclear works which creators did not verbalize or explain, aside from wanting them included in the project's documentation) (Figure 41).

At both sites, some children asked to learn how to draw certain things and/or express themselves through different visual representations and this contributed to capacity building. For example, one child asked me to draw a hummingbird for her, saying that she did not know how to do it on her own. Together, we examined images of hummingbirds and broke down shapes which the child could draw—a circle head, long nose, oval body, etc. Through group consultation, educators at site 1 focused on offering more daily resources for preschool children to learn how to represent species of interest through art.

Submitted children's artwork which involved species directly fell into two major categories: experiential and imaginative. This included:

1. Species which we knew were in the forest. (For example, at Site 1 this included: snakes, caterpillars/butterflies, squirrels, and spiders/spiderwebs. At Site 2 there was more focus on birds, butterflies, and local plants).
2. Species which children wanted to see in our forest. (For example, at Site 1 this included: hummingbirds, other migratory birds, and frogs. At Site 2 this also included migratory birds, butterflies, and plants).

3. Species which could not be in the local forest but that interested the children. (For example, at site 1 this included: bears, monkeys, and monsters. At site 2 participants did not share such ideas with me).

Figure 44: Site 1 preschoolers collaborate on an ongoing map of the forest. Various art materials were supplied by staff and chosen by children.

Figure 43 Site 2 participants collaborate on a map of local species. Art materials were supplied similarly as in Site 1

The group would also explore reusing and repurposing materials for artwork—such as creating our own paintbrushes, mixing and storing leftover paint, and other methods of reducing the Centre's 'waste' through art (see section 4.4.2). Figure 44 and Figure 43 show one activity carried out at both sites where children chose to use foraged and repurposed materials to create a map of the forest. At site 1, children were able to add to the map throughout the project. It would be fascinating to pursue a pedagogical analysis tracking children's individual and collaborative contributions (and the evolution of this) to such maps over time, in connection with group forest walk learning.

Ethical questions around artwork and consent were discussed with participants. Educators/facilitator participants, parents, and children reflected together on the differences and implications between sharing within each site, between each site, and with the rest of the world. It was especially interesting to observe the preschool children's own understandings while engaging with other participants. For example, when discussing non-verbal consent (as we had some less-verbal children in the group), some preschoolers expressed ways of understanding others based on

body movements and empathy. Together, participants decided that giving consent was a two-way conversation which did not always have to be verbal.

4.5.1.5 Drama

Figure 45: Site 1 preschoolers wearing felt masks while pretending to be different animals of interest

Some of the arts and crafts materials created by children were later used in dramatic play, such as animal masks, felt animals, and bird finger puppets. Children would sometimes express their learning about forests and species through dramatic play, connecting 'educational' knowledge of species within their imaginative play. At Site 1, as there was more time for the same children to take part in forest walks over a number of weeks, sometimes children chose to introduce dramatic play into the forest walks, choosing to 'be' certain animals and imagining how they might move through the forest. Educators and children also explored dramatic play in the forest through other activities which combined imaginative and embodied learning.

4.5.1.6 Site 1: Weekly group forest walks

Figure 46: Site 1 ECE Olga and preschoolers comparing leaves at different states of decomposition

Figure 47: Site 1, ECE Nicole helps a child get a better look of something in the trees

The Centre's forest walks took place over 8 total one-hour long group walks. The walks happened once a week, during morning outdoor time on Wednesdays or Fridays. Participant interest pushed this activity to take over as the major pedagogical project focus. Participants saw going on forest walks as an opportunity to facilitate a number of learning goals, including: introducing children to the concept of forests, experiencing local species, as well as feeling the health and wellbeing benefits of spending time in green space. Sometimes participants chose to sit and reflect in the forest through discussion and/or drawing (Figure 48). Other times, participants might forage for and collect fallen materials from the ground (Figure 46). These items would sometimes be shared with those in the Centre, include in our science or sensory tables, and/or use in art. As the group became more comfortable with the walks, sometimes other staff or children would practice taking the lead and sharing what they knew with the group. Site 1 initially viewed group forest walks with children as an introductory activity, one which would support younger participants in considering and sharing their interests and educators in planning further activities in response to this. Before starting the walks, adult participants considered safety and risk mitigation and later opened this conversation up to children. As the group discussed rules and guidelines, we asked ourselves how we could be safe, be responsible for each other, and be responsible in/for the forest.

I asked these questions to collaboratively begin exploring and building a sense of 'forest ethics' narratives within the group. This idea grew out of the study's theoretical framework and was inspired, in part, by work from the common worlds research collective. I found participants at site 1 (and later, site 2) to express stories and understandings which shared parallels with the situated and relational ethics explored by Pacini-Ketchabaw & Taylor when engaging with children's understandings of care for place and others (2019). Examples of this are shared in section 4.6.2.

When discussing ways of being safe and responsible for each other, we realized that not all participants always had proper attire for forest walks in their cubbies, and so, the Centre's

Figure 48: Site 1 preschoolers drawing in the forest near the river

community reflected and agreed that we should provide extra hats and attire for those children. Children likewise expressed their ethical understanding by learning how to help others, for example, preschoolers increasingly felt responsible for getting themselves and others ready, often checking in on each other, helping to tie each other's shoelaces, and reminding educators what materials to take while ready to go on a walk. When staff/walk leaders shared proposed activities in the forest, children offered in-the-moment input.

A focus on our perceptions (in and out of the forest) was especially helpful in planning and reflection, as the openness for a diversity of understandings, input, and approaches directed myself

and participants to unpack our thinking and problematize our pedagogical goals and approaches within the study and in ECEE in general. As an ongoing conversation amongst parents and educators, while many believed in the intrinsic importance of learning about and caring for our environment, adult participants expressed that it was hard to know how and what to teach to children, especially very young children. As planning and discussing protocols and activities together with young children at site 1 illustrated, listening to children and involving them explicitly in pedagogical planning helped adult participants to explore these questions in a more critical way.

While reminding ourselves of safety and responsibility rules before each walk, preschoolers would sometimes make up and discuss new rules based on their experiences. Their understandings of mindfulness and responsibility towards other beings developed through time spent engaging in the project, which led to new considerations. For example, the group agreed that we should walk quietly, so that we would not scare animals away before seeing them. As mentioned in the section on Snake Stories, the group was quickly given a surprising encounter when it saw a quietly slithering garter snake along the trail. Some preschoolers were scared, while others were exhilarated. Through the group's discussion while watching the snake, I shared that I had learned at Las Nubes, that heavy footsteps warn snakes that we are coming, so that they can choose to stay put or move away. Some children then decided to "wake up the snakes" with heavy steps. Some did this hoping to meet more snakes, while others hoped for the opposite. Either way, children in the group seemed to interpret my nature fact as a communicative method for snakes to then agree/consent to or flee human presence. This shifted the group's walk protocol in the forest, as they explored and embraced being included in the many sounds of the forest. Forest walk participants at site one, through weekly practice, became more comfortable during visits, as they

experimented with and explored different ways of learning about/with/and for other species and the forest.

Additionally, children expressed responsibility for place, highlighted by the group deciding that I would check and clear the trail as a part of our safety and ethics rules and guidelines. Children's expressed curiosity about garbage in the forest led to an experiential learning action-response at site 1. While trail inspection and garbage clearing was done by me before taking the group out, I had not considered it a learning opportunity in planning. From the first day, children from all of the groups stood at the Centre's fence and called out to me on my way out and in, asking what I was doing and what I had seen/found during clean-up. While I spoke about some of the species which I had seen, some preschool children interrupted me with a, "no, what's in the bag?". I considered whether I should answer truthfully, decided to do so, and said "there was a bit of broken glass I had to clear. Also some plastic containers and cans on the trail". While I had initially focused on getting rid of litter on the trails, during walks and forest activities some children pointed out litter which I had "missed" off trail. These children explained that litter in the forest was wrong, and that we had to "put it in the right bin". As a result, the group began taking bags and gloves with us to be able to collect and properly dispose of the litter which we found. For safety, the group decided that adults would handle the litter, and that preschoolers could point it out. This learning topic was extended to Circle Time, Arts and Crafts, and other daily Centre practices, as children exhibited and explored waste reduction and there are more plans to extend it at the Centre.

After each walk, reflection/debriefing sessions included group discussion and arts-based expressions. Children were asked about what they learned, what they saw, what they wanted to learn more about on future walks, and any activities they might want to try in the forest. Child participants at site 1 exhibited interest in contributing to the observation and reflection within the

project, by imitating what they saw educators doing and expanding this with their own experiences. for example, children would discuss the reactions of others during group forest walks, such as when one child shared: "'*A' was scared, he had to hold your hand*". As the group shared and learned, when entering the forest, 'A' worried about "zombies" and a teacher offered their hand as support, as we moved through the forest and encountered real species, 'A' became more comfortable, forgot that fear, and asked to join the rest of the group again. In this reflection session and others, the group discussed ways that we could mitigate fear, provide comfort to ourselves and each other, express ourselves, and grow through/for our continued forest walks. Such stories and shared children's group ideas connected EE to the four foundations of *HDLH?* (2014)—to me, this experience and the knowledge which it created were facilitated through the project's framework narratively co-constructing group forest walk pedagogical learning. Storytelling and group collaboration helped participants to engage with and overcome some of the individual and group barriers to ECEE through experiential learning (informing perceptual and narrative changes by sharing and learning pluralistic understandings of the natural world and children's education). Parents at site 2 walks likewise shared how they and their children reacted to forest encounters and what they observed during activities. Children at both sites who went on multiple forest walks were asked to compare experiences. While there were more children who went on repeated walks at site 1, differences in participants at site 2 walks meant that walk leaders had to consider and be ready to adapt to different participant capacities and needs.

Site 2: Group forest walks at Las Nubes and related arts activities at La Casita Azul:

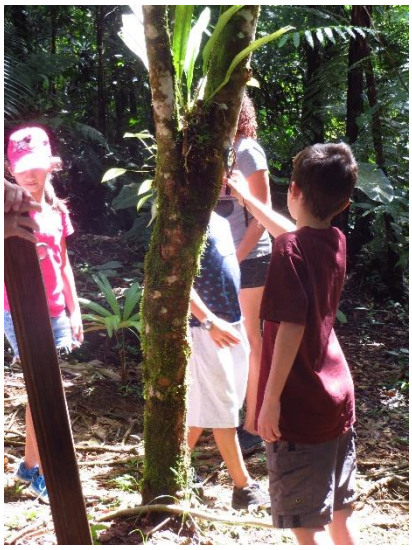

Figure 49: Site 2 group forest walk 3, a child examines moss with a magnifying glass

Figure 50: Site 2, children engaging in collage-making after group forest walk 1

Over three weeks, facilitator participants engaged in 3 group forest walks with interested community members. As in site 1, participants saw going on forest walks as an opportunity to facilitate a number of learning goals, including: experiencing and learning about local species, feeling the health and wellbeing benefits of spending time in green space, and engaging in community EE learning with young children. As a group forest walk facilitator and hike leader, Orlando focused his teaching on making connections in the forest. He described the species which we encountered and shared his understandings of the relationships which those species had with others. His engaging teaching was infused throughout the group's movement in the forest and it was inspiring to me to see how he balanced sharing facts with experiences through stories which participants of all ages could understand. Including parents/guardians during Site 2 forest walks and related art activities, as well as during home visits, deepened the study's co-constructed observations and reflections by including parents in this ECEE project more directly than those at Site 1. Through these more-diverse group experiences, parents were able to construct, share, and

respond directly to the collaborative 'storying' which child and educator participants used to express their understandings and reflect on ECEE experiences. I thought that some of the barriers within Site 1's proposed learning engagements, those related to fears which parents (and sometimes staff) held over children's participation in the project, could have been explored and addressed better had parents been available to join us on the walks and related activities. While observation, documentation, and co-constructed storying was used to share our emerging knowledge with parents at Site 1, parents at Site 2 were able to see and engage with ECEE through shared first-hand experiences. Moreover, while the same protocols were used at both sites, with modifications made at Site 2 through consultation with 'facilitator' participants, the setting allowed us more control over (and ability to adapt) the schedule than facilitators in Site 1 who were working within a pre-existing daily schedule.

One example of this is in Walk 2's change in protocols due to a smaller group of participants involved. While we had many sign up for Walk 2, only two school-age child participants showed up. As a result, we moved planned activities and talks (on snakes and reptiles) to Walk 3 and decided to focus on exploring our (smaller group's) emerging interests instead. This included stopping the bus near the EcoCampus to examine and learn about a leafcutter ant mound which

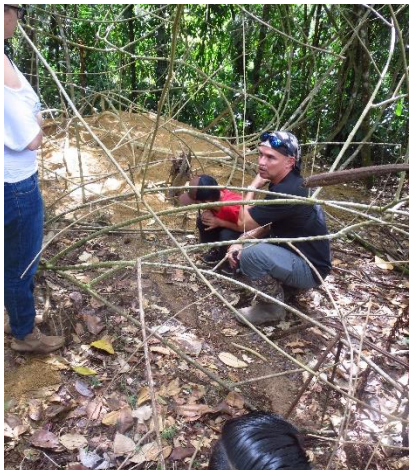

Figure 51: Site 2, exploring a leafcutter ant mound

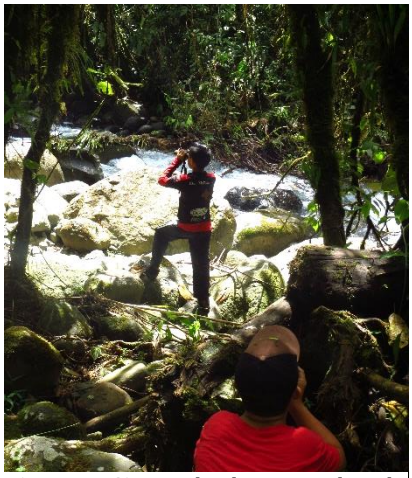

Figure 52: Site 2, school-agers explore the river

Orlando had identified from tracks on the road. Participants were engaged in seeing the ants move while learning about them. Arriving to the EcoCampus, one of the children, who had taken part in Walk 1, was int erested in following a different trail which would take us down to the river. This trail had been deemed unsafe while planning the first group walk, as facilitators worried it would be too steep and difficult to follow in a larger group with younger children. Adapting to changes in the participant's capacity's and interests for this second walk, however, we were able to engage in some river learning and exploration. See Section 4.6.3 for more details on this. Experiences from Walk 2, in-the-moment and through group reflection later at both sites, made me more mindful of recognizing and allowing for teaching and learning in the natural world while 'on the way' to planned learning activities. While *HDLH?* (2014) considers the built environment as the "context in which learning takes place," "valued for its power to organize, promote relationships, and educate" and mirroring "the ideas, values, attitudes, and cultures of those who use the space", engaging in and 'storying' this border-crossing ECEE project allowed the natural environment to emerge as the "third teacher" (20). Likewise, through exploring ECEE through this emerging project, I realized just how much the ELECT (2007) and *HDLH?* (2014) documents gloss over the importance of children engaging with their communities in outdoor and environmental learning to their own detriment. This gap works as a pedagogical disadvantage, as ECE principles and foundational goals could be strengthened and better addressed through practices explicitly incorporating ECEE. Furthermore, focusing on the narratives which participants shared and co-constructed through group learning and ECEE experiences highlighted how such engagement supports children and their communities in engaging with each other to explore and positively interact with their natural world(s). Home visits at site 2 offered more engagement in smaller groups, with those children and parents interested in the project who could not attend the group

forest walks. These visits allowed participants to engage in sharing their experiences of EE, ECE, and begin to co-construct stories around ECEE. Books, a sensory bin, and art materials were provided for participants to explore and use as they wished during these one-hour long sessions. Parents and children shared their EE interests during this time and reflected on why learning about the environment is important. We would also discuss the importance of learning from and incorporating knowledge from Semilla (2017a), such as creating opportunities for two-way knowledge transfer between the community/university, as well as between children and adults.

4.5.1.7 Site 1: Yoga/Movement

Figure 53: Site 1, Marcia leading a breathing exercise

Sharing her understandings of ECEE, yoga educator Marcia LeBlanc based indoor and outdoor yoga movement activities on children's expressed and emerging themes of interest such as plants, insects, trees and animals. She also connected these species to the ways that they might embody growth, transformation and community—extending and contributing to the pedagogical ECEE storytelling within the project. Moreover, she brought staff's attention to the ways in which children chose to enjoy, move, explore and play with such themes. Together, we explored understandings of our own and other bodies and minds, as she called attention to the interrelations between how we feel, think, and act. With her lead, the group participated in mindfulness practices

which helped us ‘slow down’ and connect to the present moment—these practices and methods were interesting to explore further during forest walks and other activities, as children would remember lessons and stories from Yoga Time. Participants saw Yoga Time as a well-being practice where we could engage in playful storytelling through movement.

4.5.1.8 Site 1: Garden

Figure 55: Site 1 Helen and preschoolers observe a worm found in the garden. Image taken by Roubina

Figure 54: Site 1, images from a classroom book made by ECE Rita. Rita documented her preschool group's experiences in the garden and taught them herb identification.

Following the Semilla (2017a) resource, the group decided to plant things in the garden which would attract and support different bird and insect species. Some of the children hoped to see migrating birds from Costa Rica, like Ruby-throated hummingbirds. The group learned how to create spaces with multiple benefits for both people and other species by planting both vegetables, herbs, and flowers. Some children compared their garden and forest walk experiences, sharing the different ways that people can care for other species. Learning about and identifying plants alongside insects and animals contributed to our teaching and learning about ecological and interconnected systems. The garden emerged as a space where we world ‘tend’ to the natural world by getting our hands dirty. Some children enjoyed such messy performances while others chose to stay outside of the gate while watering the plants. Children’s reactions to/in the garden and their expressed interests offered pluralistic understanding for educators to explore through activity

planning. Sensory play and mindfulness were also connected with participant's time spent in the garden. The garden, while sometimes romanticized by participants, was a daily experiential learning opportunity with some sharing fears around it—such as the worry of bee stings by attracting pollinators. Participants expressed the garden in dynamic terms, referencing interrelated connections within the garden, with us, and the forest's ecosystem.

4.6 Children's Expressed EE Interests

Figure 57: Site 1 preschooler Malvina's drawing "someone holding a snake"

Figure 56: Site 2 mixed media artwork by Liah (5.5) created during a home visit

At both sites, many children wanted to share their environmental knowledge with others—especially when recognizing species of plant(s), animal(s), and/or insect(s). In terms of the stories, the language used by children in their performative narratives evolved over their experiences in the project—as they learned new words and terms through facilitator-led forest walks (Riessman, 2008). Likewise, children at site 1 began to describe the forest and species which they had learned about and/or seen through more familiar terms, whereas many initially shared stories/knowledge of what others had told them, or that they had learned from books. At site 2, children's shared stories and knowledge of the natural world showed their familiarity with their spaces, however, visiting the Las Nubes EcoCampus, many expressed interest and awe over the species diversity which they encountered. In both sites, going on group forest walks was viewed by child

participants as a ‘special’ nature experience, one which was separate from their daily reality. This had especially intrigued me at site 2, as I had underestimated the ecological differences which children would perceive between their immediate ‘natural worlds’ and the forest of the EcoCampus—while I knew some things about the local ecology, I was unfamiliar with many differences—and hike leader Orlando shared his knowledge of species and ecology at different altitudes—adding to the co-constructed stories which children then told as they reflected on their experience after the forest walk. Here, I saw how collaborative group experiences in the ‘natural world’, alongside different knowledge, interpretation and meaning-making during group conversations directly shaped participant’s emerging and evolving narratives (Riessman, 2008). Throughout the process of working with this diverse group of participants, sharing our individual EE interests and knowledge with each other was taken seriously by the group, and children, especially throughout the daily practices at the Site 1 Centre, exhibited a sense of responsibility over sharing their input and feedback on project activities (see 4.5.1.1, for example). Children expressed different interests, opinions, and knowledge about species, and this varied greatly by individual. Species discussed most by children at both sites included: ‘wild’ species like snakes (Figure 57), frogs, birds, butterflies (Figure 56), spiders, mosquitos, bears, monkeys;

‘domesticated’ species like farm animals and pets; and plants, including wild and cultivated trees, flowers, mosses, and edible plants.

From the start of the study, children at site 2 more often shared their own experientially-informed knowledge of species, while the majority of children at site 1 initially expressed not knowing anything about local species—with some of those children later sharing their knowledge upon seeing species which they had had experiences with in the past. Children at both sites expressed wanting to learn more about local, shared, and far-away species despite different experiences in, and knowledge of, ‘nature’. While discussing various species during forest walks and related activities, many children at both sites would ask, “do they have this here/there?”. Figure 9 shows one of these moments, as preschoolers looked through a book of species from the ASBC and asked which were in their own forest. Children were also interested in learning other names for shared

Figure 58: Site 2 participant artwork which included messages: "let’s take care of our nature!" and "water is very important"

species. For example, children at site 1 asked their parents what the species were called in their home languages, and asked educators in the Centre what they were called in the ASBC.

Some school-age children at site 2 viewed the project as an opportunity to learn more about local biology and conservation (Figure 58Figure 58). Some had a special interest in ecotourism. For children, "learning" about species included looking at books (including a diverse range of themes and understandings), asking others, and exploring on their own by seeking out experiential knowledge during group forest walks. Some children at site 1 expressed that they would like to see species which were not local during their forest walks, including monkeys and giraffes. With increased time spent in the forest during group activities, alongside new knowledge, children began to identify local species by their common names and express wanting to see them. Toddlers at site 2 were very interested in local farm animals and enjoyed mimicking their sounds (Figure 59).

Figure 59: Site 2, Kendra (1.5) shows me her family's chickens during a home visit. Image taken by Mark

Preschool children at site 1 expressed interest during experiences with any species they came in contact with, irrelevant of how common they might be to them—for example, pigeons were given the same attentive focus and amazement as woodpeckers, cardinals, and blue jays. I believe that this expressed interest was related to Site 2 participant's perception of the project as an important opportunity to learn about nature, as such, participants at Site 1 recognized all of the species which they came across during forest walks, and even regular daily routines, as special and something to learn from/about/for.

4.6.1.1 Non-Verbal Communication

Figure 60: Site 1 artwork created by preschooler Gretel

Children often created artwork to express things that they could not say, whether because of language barriers, because they were non-verbal, or for other reasons. As visual pieces (drawings, clay works, etc.) made and submitted by children could be meant to contribute to forest experience reflections for a book (final output) and/or to communicate with others, in each instance, they were asked for consent. For example, Figure 60 shows a piece submitted by preschooler Gretel for the project. When asked what she drew, Gretel, instead of verbalizing the image, moved her hand in a way where the educator guessed, "a spider?". She nodded with a big smile. This became a guessing game of interpreting her drawing. Using more non-verbal expression through movement, the educator learned that the image also included the river that the group had seen on a forest walk and a squirrel. Through this playful narrative co-construction game, Gretel shared that the image represented her memories of their last forest walk—and she had created this image to add to our nature walks poster for others to see and reflect on. As in this example, throughout the project, when asked about who children wanted to share their work with and if they thought it should be included in the book/project's output, they often took a moment to seriously reflect on their visual expressions, and shared their decisions through verbal and/or non-verbal methods. Seeking to learn to communicate with young children on their terms as a part of this project was a part of the

relational co-construction of knowledge which emerge through pursuing collaborative ECEE work. Children actively contributed to community narratives of learning experiences, informing and informed by adult understandings. Pedagogically, as a form of construction, observations made within a paradigm of individualistic and categorized understandings from Developmentally-Appropriate Practice shape a certain way of thinking, collecting, and analyzing data—while Postdevelopmental pedagogies seek to recognize and facilitate more relational understandings of knowledge and learning. Through my practice, I found that I, and other participants, understood phenomena more deeply and critically after engaging with more pluralistic understandings—realizing that there are many ways to interpret the natural world. In this sense, critical ECE understandings could better inform EE practices, by sharing more diverse and accessible ways of understanding the world through dynamic co-constructed pedagogical storytelling.

4.6.2 Stories of Children's Expressions of Affinity for the Natural World

During activities at both sites, children exhibited respect and care during interactions with and reflections on other species—there were never any moments where a child expressed wanting to harm anything/one. Some of the expressed fears and ideas of risk held by adult participants were

Figure 61: Site 1 participants exploring dandelion flowers. Image taken by Virginia

not shared by children. At site 1 this included the majority of the group's interest in seeking out and seeing local snakes.

Another example of this comes from site 1 preschooler's affinity for 'weeds'. Figure 61 shows a small field full of dandelion flowers between the forest and child care Centre which some children asked if they could pick before a forest walk. One child suggested we should let the flowers grow because "if we take them out of the ground they will die". After an educator shared how dandelion seeds are dispersed, children reflected and decided that it was okay to pick some flowers to 'help' disperse their seeds—but that we should leave the yellow flowers to allow them to create seeds. Other children figured out how to disperse seeds without picking the plant as well, by getting down to its level and blowing on it. After this, educators began to plan programming around children's interests in dandelions. Seeing this as an opportunity to include and interrogate politicized understandings of dandelions with children (and adults), I shared how some people view them simply as 'invasive' 'pests' which take over lawns. Some children were shocked over this information. Some adults agreed. As Site 1 participants looked into and discussed more diverse knowledge on the plant, we learned about their medicinal uses as well as how they can help support healthy gardens and other plants. We also learned that they tend to 'invade' disturbed land, including monocultured grass lawns—leading to more conversations on what habitats children wanted to maintain and/or promote through tending to our local garden. With more complicated understandings of the species, some children began to describe the plant to others as more than just a 'yellow flower' or 'puffball'. They began to tell stories of the plant as misunderstood by many while expressing their own affinity for the plant. At site 2, had I had more time to engage with participants while on-site, I would have asked them to teach me about and explore diverse understandings of the mimosa plant. This is a 'sensitive' plant which responds to touch, and which I saw tended to grow on lawns in the Corridor. Like the dandelions, adults seemed to ignore the plant or perceive it as a weed, while some children expressed an affinity for its capacities. On

forest walks at the EcoCampus, as we moved across the lawn, I observed children on multiple occasions stopping to gently stroke the plant and watch its leaves move in response before they moved on.

Children's observed expressions of care for the 'natural world' showed a great sense of respect for all living beings. For example, at site 1, in addition to proper attire, preschoolers chose increased movement and singing a song called "Shoo-fly" to proactively prevent mosquito bites over harming the insects with slaps or potentially harming other species through the use of bug sprays. Many children I spoke with during this study did not express a 'hate' for any living beings, however had 'favorite' species. For example, at Site 2 during a home visit, Liah (5.5), while looking over books on different species, I asked how she felt about snakes and she simply expressed that she preferred frogs, especially red ones, over snakes.

Figure 62: site 2 schoolagers pose on the EcoCampus lookout

Children at both sites expressed wanting to spend more time in the forest. At site 1 children expressed that they were sad when it was time to begin going back to the daycare—despite acknowledging that they were getting hungry or tired. They wanted to stay in the forest and many would ask daily about the next time that we could go on a forest walk. At site 2, during the group's lunch break, many children (with supervision) explored around outside of the EcoCampus on their

own (Figure 62). At site 1, those who expressed fear/aversion to perceived dangers and/or uncertainties during forest walks seemed to later exhibit a change in response after more time spent in the forest. At site 2 children seemed more comfortable being in the forest despite expressing amazement over the differences, due in part to its increased elevation. Children often made connections, suggested their own hypothesis, and took part in observations during experiences in the forest. The care and curiosity exhibited during these moments were pedagogically stimulating.

For example, at site 2, during a forest walk, the group took a snack break by the river. One adult, Joselyn, noticed an inch worm moving up her arm and school-agers Dylan and Josue looked at it

Figure 65: Site 2 participants observing an inch worm

Figure 64: Site 2 participants field note observations (text reads, "the inchworm and the papaya")

Figure 63: Site 2 participants testing if an inchworm would eat papaya

through a magnifying glass (Figure 65). One of the boys wondered if it would eat a piece of his papaya (Figure 63). They gently moved the inch worm to a papaya and watched, documenting the experience in their field notebooks.

Magnifying glasses emerged as a tool used at both sites which greatly interested children. The offered a view into a different perspective, or scale, of the natural world. Based on the Centre's use of them at Site 1, I brought along some magnifying glasses to site 2. On forest walks, children and adults made use of the magnifying glasses to get a close-up look of different plants which hike leader Orlando described. The tools were helpful during small-world exploration activities to see things which we would have otherwise missed. Likewise, the tools facilitated learning through play for younger children as they realized that the glass made things appear smaller or larger.

Figure 67; Site 2, Kendra (1.5) laughs after observing her hand with a magnifying glass

Figure 66; Site 1 preschoolers using magnifying glasses for imaginative play while creating a map

At Site 1, alongside nature observations, the preschoolers often used magnifying glasses in imaginative play, for example during one activity where preschoolers were working on a continuing collaborative art project, a map using natural materials to represent the forest. After a few minutes of choosing materials, planning, and agreeing on the route, one child decided to go to the science table and hand out magnifying glasses to everyone, as she said, "so we see everything". This led to an imaginative session where the group reflected on the things that they saw in the

forest as if they were seeing it on the map: “Here’s the bee” and “look, woodpecker!” one child said “I don’t see the bridge” and another replied “oh, let’s make it”. The group was engaged and expressed themselves and their learning from the forest walk. Educators contributed by asking questions like “what might we find closer to the river?” and “should we include the sounds we heard in the map?”. Observing children and the tools they use to engage with the natural world was important for activity planning, as we aimed to build upon children’s learning interests in engaging ways. Keeping learning sections open and materials available for children to use as they wish was eye-opening to me while planning activities, as they would often incorporate materials in unexpected ways.

4.6.3 River Explorations

Figure 68: Site 2 participant Dylan balancing river rocks

Site 1 forest walks took place near the Don West river and Site 2 forest walks took place near the Peñas Blancas river. At site 1, we would stop by and look at the river during each walk in different places where it came close to the trail. Staff and children would observe and discuss changes to the river (water level, colour, speed). At Site 2 on the second forest walk, we went down a trail to the river, which was low at the time, and explored in and around it (Figure 64, Figure 63, Figure 65). Participants at Site 2 often shared great understandings of/from their river, and upon returning

to Site 1 and recognizing that I and participants knew little of our local river, I was inspired to research and share facts about the Site 1 river with participants. As I learned, planning around the river and valley system is why we had the greenspace and trail near our Centre, while planning for greenspace around the river is fragmented, there is growing understanding and action towards creating corridors (TRCA). Despite shared interest, participant engagement at each river looked differently. At Site 1, we observed the river and engaged in learning without going into it (Figure 48). Reasons for this included safety considerations due to the depth and speed of the river, fears that the water was 'unclean', and the group's capacities. As a response to these issues but still wanting to engage with rivers as a component of forest systems, we incorporated outdoor water-play in other ways—such as through sensory bins. At Site 2, however, participants expressed their situated understandings of the river, as well as exhibited how they engage with it. For example, Orlando shared a practice of balancing river rocks, which was a low-environmental impact and meditative mindfulness practice.

4.6.4 Bird 'migrations' between sites

Figure 69: Site 2 home visit with Kendra (1.5 years old). Image taken by Mark Milnes Lopez

Figure 70: Site 1 preschoolers Anhad and Khang show off their painted bird finger puppets during a forest walk

As the project emerged, collaboration within and between both sites facilitated experiential ECEE knowledge-creation and sharing. For example, while looking for resources to include in activities

at site 2, I discovered “Flying Finger Puppets”, designed by Héctor Serrano (for NPW), pictured in the lower left of Figure 69. As these finger puppets were enjoyed by child participants at site 2,

Figure 72: Site 1 preschooler artwork in ECE Rita’s classroom—a Cardinal bird made using a toilet paper roll, feathers, felt, and tissue paper

Figure 71: Site 2, painting of a bird, part of collaborative map of local species

educators considered the pedagogical opportunities which they offered to the project. At site 1, participants were learning about migratory bird species but had not had any experiences with them in our local forest. As the Finger Puppets were brought into site 1, children asked if there were more different kinds of bird finger puppets which they could play with. The group decided to customize their own, inspired by the designs and shapes of the Flying Finger Puppets alongside the birds which they were learning about. The results can be seen in Figure 6, and children decided to bring these migratory species along on their forest walks, seen in Figure 70. While we did not find shared migratory birds on our walks, birds held a large interest for children at both sites, expressed through their conversations, play, and artwork (Figure 72, Figure 71).

For example, at site 1, preschooler Malvina, while passing a bush with red berries, pointed at it and shared with the group, “Birds eat berries. We can’t eat those berries, they’re for birds”. I appreciated her consideration for the birds, as well as the reminder to the group not to eat any berries they found on the trail. I wondered aloud what kind of birds might eat those berries and began naming some birds--everyone in the group recognized the name blue jay, but did not seem

to remember the Canada goose (they later did when shown a picture). When I said warbler some began to mimic its call from a book read during a recent circle time. No one else suggested any other species, but on our way back to the Centre, as we emerged from the forest, preschooler Anhad, noticed, pointed, and exclaimed "a pigeon!" We stopped to look at it and the group wondered if it ever went into the forest to eat red berries or if it had enough food in the parking lot. At site 2, hike leader Orlando was an expert at identifying birds from their calls, and as we moved through the forest on group walks, would name the birds that we heard and describe their place in the forest. Learning about birdcalls was a shared participant interest which grew from the experience of hearing but not always seeing birds.

5 Conclusions

For educators interested in facilitating positive experiences in 'nature', teaching about the environment and environmental issues, and/or equipping learners to be active citizens in their communities, what 'first-step' to pursue can be daunting. As I have found, it can be as easy, or difficult, as going on a group forest walk. For myself, the experiences of engaging in such work illuminated the significance of interpretation and storytelling in mobilizing community environmental engagement. By framing the project as an ECEE opportunity to learn with/from children in/for/about the 'natural world', participants were able to explore their emerging environmental interests through collaborative practice. Knowledge through practice shows us the impossible-to-account-for 'lessons' which situated understandings (in 'nature', with young children) might teach us. As I have experienced through my own practice and research, I found it helpful to navigate the barriers to such work through collaborating with a wide range of

stakeholders, explicitly creating a space to listen to and engage with 'other' voices, problematize the context and narratives which shape our thinking, and adapt my ideas and actions in response to the realities of practice (responding to the relational understandings which are emerging). In collaboratively exploring and learning in the 'sensory forest', aspects of the 'political forest' emerged. This began with my pedagogical question of 'how do we introduce children to EE?' and I went about learning to answer this question by following children and educator's emerging EE interests. The ensuing environmental experiences which took place at both sites shaped and reshaped expressed narratives of 'community' and 'ethics' in/with/for the natural world. Likewise, by working with children as active co-researchers, participants who had not previously engaged with children and/or environmental education in such ways experienced the contrasts, and environmental justice implications, of adult-centric and anthropocentric thinking and practices against pedagogies which recognize and support more pluralistic and relational knowledge-making. By following the process of this diverse group seeking to engage in inquiry-led experiential learning and experimentation, I aimed to share diverse stories of participant's emerging relationships in/with/for 'nature'. As a 'first step' to practicing and sharing in such collaborative research, I was interested in co-constructing stories expressing the possibilities and opportunities within incorporating more 'dynamic' and 'pluralistic' understandings of ECE and EE. This work aims to add to the "broad and inclusive discourse" of global movements using the language of environmental and ecological justice while mobilizing communities to act for positive change and support the well-being of all life on Earth (Schlosberg, 2007, p. 8).

While ECEE can address and build on the lived, pluralistic, and complicated realities of individual and community engagement with the natural world, it does not do so inherently. Instead, it requires an active co-constructed narrative engagement between educators, learners, and their communities

as they iteratively plan, learn, and reflect on their work. Research collaborations can create an 'informal' learning space to engage in such work—facilitating possibilities for pedagogical experimentations otherwise impossible due to systemic barriers. Muddying the research relationship, research and stories seeking to foster experientially-built shared community visions which incorporate broader individual understandings and needs into positive actions offer a way of thinking and learning about/in/for the world which goes against dominant contemporary individual-centrered worldviews and pedagogy. Sharing more diverse experiences, reflections, and actions are all equally important in the stories moving us forward.

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